

ARMED FORCES INSTITUTE OF PATHOLOGY

ANNUAL REPORT

2005







MISSION

The Armed Forces Institute of Pathology supports the United States Department of Defense and serves the American people by providing medical expertise in diagnostic consultation, education, and research to enhance the health and well being of the nation.

VISION

The foremost pathology knowledge center, combating disease through:

Authoritative diagnosis

Future focus

Innovative research

Preeminent education

GUIDING PRINCIPLES

Patient comes first

Integrity/honesty

Professionalism

Excellence

Teamwork

GOALS

1. **PERFORMANCE**—An Institute that clearly pursues, establishes, and preserves world-class performance based on access, quality, and cost.
2. **RECRUITMENT & RETENTION**—An atmosphere of personal and professional growth that recruits, develops, and retains innovative, creative people and renowned leaders.
3. **OPERATIONS**—An efficient work environment in a central location that fosters trust and collaboration, mission focus.
4. **READINESS**—A tri-service, interactive Institute recognized nationally for its distinguished contributions to the medical services and mission readiness of the Armed Forces through scientific discoveries, consultations, education and training, investigations, and research and development.
5. **COLLABORATIONS**—An Institute that actively promotes formal collaborative projects, programs, and processes that benefit the Armed Forces and the nation with government, academia, industry, and worldwide partnerships with a combined commitment to stewardship.

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2005 ANNUAL REPORT

Armed Forces Institute of Pathology
Washington, DC 20306-6000

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DIRECTOR'S MESSAGE



The AFIP receives thousands of second-opinion cases from the military and civilian medical communities each year. Our world-class staff renders diagnostic changes in over half the cases received and, in almost a quarter of them, makes the initial diagnosis.

Next to our staff, our most valuable asset is our unique Repository of tissue specimens and blocks, which in 2005 accessioned the 3,000,000th case since the establishment in 1917 of a formal repository system by the Institute's predecessor, the Army Medical Museum. The Repository played a crucial role in the most talked-about scientific research of 2005: completion of the genetic code of the 1918 Spanish influenza virus, and how it came to kill over 50 million people worldwide. Jeffery Taubenberger, chief of the Department of Molecular Pathology, led a team of scientists who spent close to a decade unlocking the genetic mysteries extracted from paraffin-embedded tissue specimens taken at autopsy from soldiers who died in the flu epidemic. The team published their findings on the virus's last genetic segment in the October 6 issue of *Nature*, just as world leaders began pressing for extraordinary measures to prevent a possible new pandemic from the H5N1 bird influenza.

Our staff utilizes Repository materials in the 174 comprehensive pathology research protocols currently underway, and to develop journal articles, book chapters, and study sets. The Repository is also playing a valuable role in the development of tissue microarrays. The technology to create one slide containing 500 to 1,000 tiny cores taken from multiple tissue specimen blocks opens a new frontier in medical research, and will allow researchers to learn more in less time.

In 2005, the Department of Medical Education drew upon Repository materials to develop and conduct 45 courses attended by over 2,300 medical and scientific professionals, 5 conferences, and 24 Grand Rounds videoteleconferences to benefit U.S. military and civilian medical personnel. During the year, we awarded over 110,000 CME credits to military physicians, veterinarians, and other scientists.

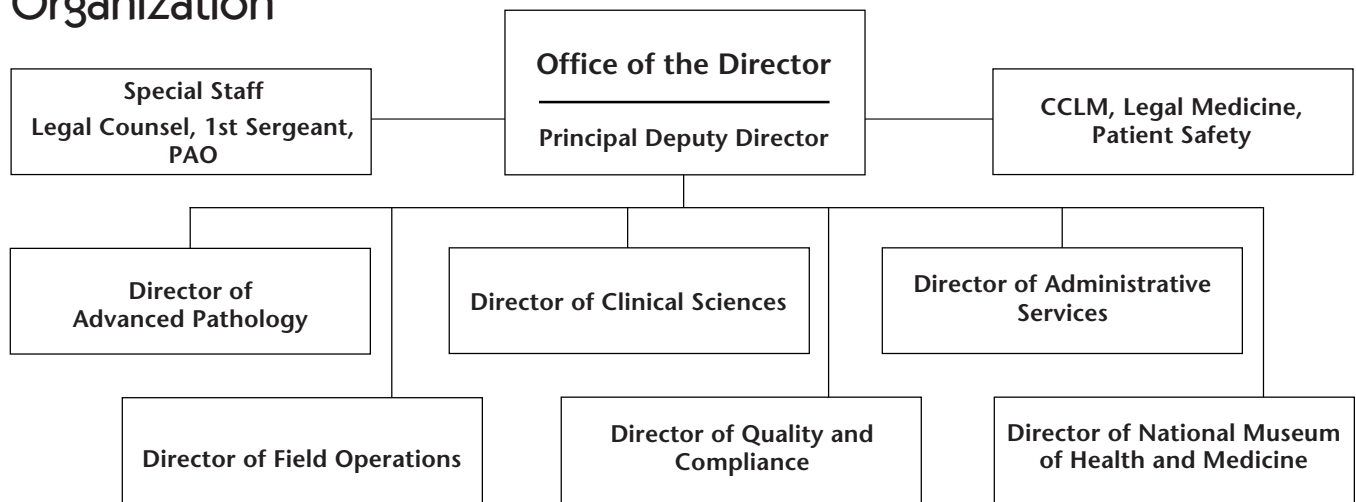
In 2005, version 1 of AskAFIP™ debuted online. This application links the Repository with journal articles and books written by AFIP staff, and offers a unique way for pathologists to obtain CME credit. AskAFIP™ is available at no charge to military healthcare providers; other government physicians and civilian customers may pay a nominal fee. Version 2 is set to deploy in the spring of 2006. In addition, the AFIP is now managing the Army Telepathology Program. Twelve Army facilities are receiving the latest in telemedicine technology, giving our experts an even greater impact on patient treatment options. In 2005 we received \$1.1 million from the Department of the Army to upgrade the technology essential to this program.

The Armed Forces Medical Examiner System and its staff of forensic experts provided a full accounting of all who gave their lives in the Global War on Terror during 2005, including comprehensive DNA and forensic toxicology analyses. The system's Mortality Surveillance Division collected data from these examinations that resulted in improved protective gear and survivability for our deployed forces.

2005 was also a year of change for the Institute. In November, the Base Realignment and Closure (BRAC) Commission's recommendations became law (see www.dod.mil/brac for more information). For now, the AFIP remains fully staffed and as committed as ever to providing the outstanding services the military and civilian medical and scientific communities have come to expect.

Renata B. Greenspan
COL, MC, USA
The Director

Organization



AFIP Key Personnel



Renata B. Greenspan, COL, MC, USA, Director (right); Florabel G. Mullick, MD, ScD (Hon), FCAP, SES, Principal Deputy Director(left), and Charles W. Pemble III, Col, USAF, DC, Deputy Director, Air Force, Director of Field Operations.

Renata B. Greenspan, COL, MC, USA
The Director, AFIP

Florabel G. Mullick, MD, ScD (Hon), FCAP, SES
Principal Deputy Director

Sumitra Parekh, COL, MC, USA
Director, Advanced Pathology

Charles W. Pemble III, Col, USAF, DC
Director, Field Operations
Deputy Director, Air Force

Christopher R. Owner, PhD
Director, Clinical Services

Robert D. Foss, CAPT, DC, USN
Director, Quality and Compliance
Associate Director, Navy

James L. Staiger, MD
Director, Administrative Services

Adrianne Noe, PhD
Director, National Museum of Health and Medicine, AFIP

William A. Gardner Jr, MD
Executive Director
American Registry of Pathology

Tamara A. Herdener, JD
Legal Counsel

Christopher C. Kelly
Public Affairs Officer

Timothy Davidson, MSgt, MSC, USA
First Sergeant

Board of Governors

The **Board of Governors** of the AFIP consists of the Assistant Secretary of Defense (Health Affairs), who serves as Chair of the Board; the Assistant Secretary for Health, Department of Health and Human Services; the Surgeons General of the Army, Navy, and Air Force; the Chief Medical Director for the Department of Veterans Affairs; and a former Director of the Armed Forces Institute of Pathology. The Board of Governors meets several times a year, and, based on the recommendations of the Scientific Advisory Board and institutional reports, establishes guidelines and broad administrative and professional policies in consonance with the medico-military objectives of the Institute. The Board of Governors met February 11, June 3, August 1, and November 29, 2005.



William Winkenwerder Jr, MD, MBA
Assistant Secretary of Defense for Health Affairs
Office of the Assistant Secretary of Defense for Health Affairs
Pentagon, Washington, DC



LG Kevin C. Kiley, MC, USA
The Surgeon General
Department of the Army
Falls Church, VA



VADM Donald Arthur, MC, USN
The Surgeon General
United States Navy
Bureau of Medicine and Surgery
Washington, DC



LtGen George Taylor, USAF, MC
The Surgeon General
Bolling Air Force Base
Washington, DC



Richard Carmona, MD, PhD
US Surgeon General
Department of Health and Human Services
Rockville, MD



Jonathan Perlin, MD, PhD, MSHA, FACP
Under Secretary for Health
Department of Veterans Affairs
Washington, DC



Robert F. Karnei, MD
Wythe County Community Hospital
Wytheville, VA

Scientific Advisory Board

THE CHARTER FOR THE AFIP **Scientific Advisory Board** states that the basic term of office of civilian members shall be two years and that no civilian member may serve more than two terms in succession; it further states that terms shall be staggered to provide a rotating membership. The Board meets at the call of the Director, AFIP, to advise on scientific and technical matters. Board members are selected from outstanding specialists in their respective fields of medicine. The Board met May 19–20, 2005.

A. Julian Garvin, MD

Professor and Chair, Pathology
Wake Forest/Bowman Gray School of Medicine
Winston-Salem, NC
(Awaiting reappointment)

Benjamin Gerson, MD

Chemistry/Lab Administration
University Services
Philadelphia, PA
(Awaiting appointment)

Ted Hadfield, PhD

Midwest Research Institute
Palm Bay, FL
(Awaiting appointment)

J. Carlos Manivel, MD

Division of Surgical Pathology
Minneapolis, MN
(Awaiting appointment)

Cesar A. Moran, MD

University of Texas
MD Anderson Cancer Center
Department of Pathology
Houston, TX
(Awaiting appointment)

Beverly P. Nelson, MD

Department of Pathology
Northwestern Memorial Hospital
Chicago, IL

Joseph E. Parisi, MD

Division of Anatomic Pathology
Mayo Clinic
Rochester, MN
(Awaiting appointment)

John E. Pless, MD

Indianapolis, IN
(Awaiting reappointment)

Alan D. Proia, MD, PhD

Department of Pathology
Duke University Medical Center
Durham, NC
(Awaiting appointment)

Robert L. Reddick, MD

Chair, Department of Pathology
University of Texas
San Antonio, TX
(Awaiting appointment)

Mary S. Richardson, MD

Director of Surgical Pathology
Department of Pathology and Laboratory
Medicine
Medical University of South Carolina
Charleston, SC
(Awaiting appointment)

LeRoy Riddick, MD

Regional Medical Examiner
Mobile, AL
(Awaiting appointment)

Fred G. Silva, II, MD

US and Canadian Academy of Pathology
Augusta, GA
(Awaiting reappointment)

Stanford Stass, MD

Professor and Chair, Department of Pathology
Greenbaum Cancer Center
University of Maryland
Baltimore, MD
(Awaiting reappointment)

Patricia A. Thomas, MD

Professor and Chair of Pathology
Associate Dean, Office of Cultural
Enhancement and Diversity
University of Kansas Medical Center
Kansas City, KS
(Awaiting appointment)

Ronald S. Weinstein, MD

Professor and Head, Department of Pathology
University of Arizona College of Medicine
Tucson, AZ

Bruce M. Wenig, MD

Chair, Department of Pathology and
Laboratory Medicine
Beth Israel Medical Center
St Luke's & Roosevelt Hospitals
New York, NY
(Awaiting appointment)

Ex Officio Members of the SAB from the Federal Service

MG Lester Martinez-Lopez

Commanding General
Medical Research & Materiel Command
Ft Detrick, MD

COL Mark Brissette

Chief, Department of Pathology and Laboratory Medicine
Washington, DC

Col Paul B. Christianson

Commander, Air Force Medical Operations Agency
Office of the Surgeon General
McLean, VA

Lt Col Brian Kendall

Air Force Pathology Consultant
Wilford Hall Medical Center
Lackland AFB, TX

CDR David M. Larson

US Navy Pathology Consultant
Naval Hospital Jacksonville
Jacksonville, FL

CDR William O. Rogers

Naval Medical Research Unit 3
Ghana Det
Department of State
Washington, DC

Col Thomas Burke

Program Director, Mental Health Policy
Office of the Assistant Secretary of Defense (Health Affairs)
Falls Church, VA

Robert M. Friedman, MD

Professor and Chair, Department of Pathology
Uniformed Services University of the Health Sciences
Bethesda, MD

Kenneth Olden, MD

Director, OD/NIEHS/NIH (B2-01)
Research Triangle Park, NC

Fred H. Rodriguez, Jr, MD

Chief, Pathology and Laboratory Medicine Services
VA Medical Center
New Orleans, LA

Linda A. Sherman, MD, MPA

Advisory Committee Oversight & Management Staff
Office of the Commissioner
Food & Drug Administration
Rockville, MD

Sherif R. Zaki, MD, PhD

Infectious Diseases Pathology
Centers for Disease Control & Prevention
Atlanta, GA



Renata B. Greenspan, COL, MC, USA
The Director
Date of Appointment — 28 May 2003

OFFICE OF THE DIRECTOR

Dwan Soto
Secretary



Florabel G. Mullick, MD, ScD, FCAP, SES
Principal Deputy Director
Date of Appointment — 4 June 1999

OFFICE OF THE PRINCIPAL DEPUTY DIRECTOR

STAFF

James Affonco, MA, Chief of Staff
Ridgely L. Rabold, AAS, Executive Assistant
Hilda P. Elescano, Administrative Assistant

IMPACT

The Principal Deputy Director (PDD):

- Serves as the principal advisor, assistant to, and executive agent of the Director, AFIP for the overall direction, administration, policy formulation, business practices, operation, and management of the organization in executing all of its assigned missions.
- Supports the Director by providing broad guidance and leadership for all areas of the Institute and insures that these areas contribute in an appropriate manner to the overall missions of the Institute.
- Ensures the integration of financial strategies, business planning, and the scientific activities of the Institute, which fully support the Director's responsibilities for program development and management review of all Institute resources and missions, to insure they are consistent with planned resource objectives.
- Is the Director's primary executive agent in carrying out the responsibilities of scientific policy, financial budgeting, and resources management oversight of all Institute programs and missions.
- Monitors program evaluation throughout the Institute and recommends policy and program changes to the Director to improve their efficiency and effectiveness.

CONSULTATION, EDUCATION, RESEARCH

Dr. Mullick is credentialed and privileged in environmental pathology. As Chair, Department of Environmental and Infectious Disease Sciences she provides consultations in environmental pathology. She is a world-recognized expert on environmental health issues and adverse drug reactions. She lectures widely on these issues, especially in pediatric pathology, and participates in the development of funded research protocols. She lectures at AFIP courses and serves as course director for the AFIP Spanish Course. Dr. Mullick obtained funding to continue the Summer Student Program at the AFIP and has been a strong champion of minority education through her work with the Ana G. Mendez University System. For additional information, see the Department of Environmental and Infectious Disease Sciences section.

PHYSICIAN-EXECUTIVE ADMINISTRATION

Dr. Mullick presides over the PDD's Deputies Council, which includes the Director of Field Operations, the Director of Advanced Pathology, the Director of Clinical Sciences, the Director of Administration, the Director of the National Museum of Health and Medicine, and the Associate Director for Navy (voting members), as well as the Chair of the Department of Legal Medicine and the Director of the Patient Safety Center (nonvoting members).

Activities in 2005

1. Reviewed all external contracts to assure competitive benefits for the AFIP, including DoD's Depleted Uranium programs with the VA and at the US Army Center for Health Promotion and Preventive Medicine and the Global Emerging Infections Survey.
2. Promoted, monitored, and focused the program for developing monoclonal antibodies for infectious agents, which will allow DoD to identify biologic agents with greater specificity. Identified and controlled critical cost elements of the program.
3. Reviewed budgets from all Directorates. Directed cost reduction and savings. Encouraged the Council to reduce overall budget while keeping a high standard of performance.
4. Improved force structure by combining departments for greater strength and effectiveness. Insured that all members of the organization contributed positively to the AFIP's Business and Transformation Plan.
5. Provided leadership in improving financial performance.
 - a. Reduced Defense Health Program (DHP) expenses and expanded external revenue sources.
 - b. Reduced DHP expenses in personnel costs by transferring people to external grant monies.
 - c. Reduced DHP expenses in equipment by using GWOT funds for big-ticket items.
6. Contributed registry material to the National Library of Medicine in support of the Distance Learning Initiative. Electronic atlas-based continuing medical education courses are proliferating continually. Encouraged departments to submit new courses and revise old ones. Brought in additional funds by charging for Telepathology cases. Increased business hits on sites.
7. Established a mechanism to review all personnel actions and budgets. Realigned funding to areas producing greatest effect and reduced staffing for lesser-performing areas by the end of 2005, assuring that senior management policy is carried out at operator level. Personnel, travel, space, supplies, and equipment are now more directly linked to the budget process. The Council provides an objective vehicle for shifting resources.
8. Continued Operation Iraqi Freedom Registry to perform surveillance, identify concerns, and assess health status.
9. Continued Leishmaniasis Registry to perform surveillance and confirm diagnosis.
10. Maintained the Institute's CAP laboratory accreditation.
11. Customer satisfaction survey has been extended to an annual program. Surveys demonstrate consistently that customers are satisfied with our products.

We are convinced that we have the right strategy in place for a world-class, top-tier, scientific organization. We will do this by focusing on our priorities of turning cutting-edge science into breakthrough techniques and methodologies, supporting them through targeted and well-executed marketing, and improving our operational efficiency. In addition to investing in our infrastructure, we will continue our intense focus on our customers' needs and satisfaction.

Our ongoing mission to respond to all kinds of needs in a variety of emergent situations requires the many talents and experiences of our multicultural workforce. We value this diversity and seek to foster it because it sparks innovation when employees with different perspectives work together to offer solutions to the many challenges that science and the times present.

In the subsequent sections of this report devoted to individual service-line and department accomplishments, you will clearly see the results of our renewed focus and the commitment of our dedicated people. Their contributions and skills have been central to the record-setting achievements of 2005 and continue to provide us with a hopeful view of the future. It is through these 5 service-lines that we are able to achieve the high level of response to all sorts of requirements in all sorts of situations. We stand ready as the "9-1-1" hotline for the Department of Defense.

ACTIVITIES

Journal Articles

1. Murakata LA, Lewin-Smith MR, Specht CS, Kalasinsky VF, McEvoy P, Vinh TN, Rabin L, Mullick FG. Characterization of embolization microsphere plastic in vitro and in human tissue sections by light microscopy and infrared microspectroscopy. *Arch Pathol Lab Med.* 2005;129:557.
2. Specht CS, Lewin-Smith MR, Murakata LA, Rushing EJ, Sandberg GD, Kalasinsky VF,

- Moroz AL, Mullick FG. Central nervous system neoplasia in 1990-1991 Gulf War veterans. *J Neuropathol Exp Neurol*. 2005;64:459.
3. Todorov TI, Ejnik JW, Mullick FG, Centeno JA. arsenic speciation in urine and blood reference materials. *Microchim Acta*. 2005;151:263-8.
 4. Centeno JA, Mullick FG, Finkelman RB, Selinus O. medical geology: an emerging discipline in support of environmental and military medicine. *Mil Info Tech* [serial online]. 2005;ed 1057.
 5. Katzin WE, Centeno JA, Mullick FG, Feng LJ, Kiley M. Pathology of lymph nodes from patients with breast implants. *Am J Surg Pathol*. 2005;29:506-11.
 6. Makhlof HR, Abdul-Al HM, Goodman ZD. Diagnosis of focal nodular hyperplasia of the liver by needle biopsy. *Hum Pathol*. 2005;36:1210-6.

Abstracts

1. Kalasinsky VF, Tristan JO, Pizzolato KM, Gaydos JC, MacIntosh VH, Malone JL, Mullick FG. DoD Directory of Public Health Laboratory Services Internet-Accessible Database. In: Book of Abstracts of the Society of Armed Forces Medical Laboratory Scientists, March 13-17, 2005, Jacksonville, Fla.
2. Pizzolato KM, Kalasinsky VF, Tamanaha EY, Tristan JO, Gaydos JC, MacIntosh VH, Malone JL, Rumm PJ, Mullick FG. DoD Directory of Public Health Laboratory Services Internet-Accessible Database. In: Book of Abstracts of the 43rd Annual Meeting of the Infectious Diseases Society of America (IDSA), October 3-7, 2005, San Francisco, Calif.

Book Chapter

Centeno JA, Mullick FG, Ishak KG. Environmental Pathology. In: *Essentials of Medical Geology*. San Diego, Calif: Elsevier-Academic Press; 2005:563-94.

Lectures and Presentations

FG Mullick

1. January/February 2005: St. Petersburg Beach, Fla, USAMRMC Command Conference, "Medical geology: an emerging discipline in support of environmental and military medicine."
2. February 2005: Antigua, Guatemala, Patologia Quirurgica Temas Selectors y Seminario de Laminas, "AFIP pasado y presente."
3. August 2005: Louisville, Ky, 8th Annual Force Health Protection Conference, "An environmental pathology overview of tissue reactions to selected toxic metal and metal compounds."

Deployments

1. January 2005, San Juan, PR, AGMUS Curriculum Subcommittee Meeting.
2. February/March 2005, San Antonio, Tex, US/CAP.
3. March 2005, San Juan, PR, AGMUS Board of Directors Meeting.
4. March 2005, Ft Detrick, Md, Armed Forces Epidemiological Board Meeting.
5. April 2005, San Diego, Calif, AGMUS Board of Directors Annual Conference.
6. April 2005, Ft Detrick, Md, EPI Board Meeting.
7. April 2005, Turabo, PR, UNE Research Faculty.
8. June 2005, San Juan, PR, AGMUS Students Graduations.
9. October 2005, Madrid, Spain, AGMUS Board of Directors Annual Seminar.
10. November 2005, Turabo, PR, Geology Course.
11. December 2005, San Juan, PR, Mass Spectrum Laboratory Inauguration.

External Representation

1. DoD Representative to the National Advisory Environmental Health Sciences Council, National Institute of Environmental Health Sciences, Chapel Hill, NC.
2. AFIP representative to Armed Forces Epidemiology Board, DoD(HA), Washington, DC.
3. Editorial Reviewer:
 1. *Annals of Internal Medicine*
 2. *Gastroenterology*
 3. *Hepatology*
 4. *Electronic Journal of Pathology and Histology*
 5. *Annals of Diagnostic Pathology*
 6. *Toxicologic Pathology*

7. *Patologia: Revista Latinoamericana*
4. Member, External Advisory Committee, Center for Environmental Health, Jackson State University, Jackson, Miss.
 5. Member, International Geological Correlation Program in Medical Geology, International Union of Geological Sciences and UNESCO.
 6. Member, Research Center for Minority Institutions, Metropolitan University, Ponce, PR.
 7. President, National Science Foundation's Model Institutions for Excellence Advisory Board, Ana G. Mendez University System.
 8. Chair, Task Force for National Science Foundation's Science and Technology Alliance, Ana G. Mendez University System.
 9. Member, Scientific Advisory Board, FindCancerExperts.com, the patient Web resource for accurate cancer diagnosis.
 10. Chair, US Presidential Advisory Board for Science and Technology, Ana G. Mendez University System.

Representation to Professional Societies

1. Member, Foundation for Advanced Education in the Sciences, Inc.
2. Member, Society for Pediatric Pathology
3. Member, United States and Canadian Academy of Pathology
4. Member, American Academy of Federal Service Physicians
5. Member, American Association for the Study of Liver Diseases
6. Member, Hans Popper Society
7. Member, Sociedad de Gastroenterologia, Puerto Rico
8. Member, Academy of Medicine of Washington
9. Member, Senior Executives Association
10. Secretary, International Academy of Pathology
11. Member, Association of Directors of Surgical Pathology
12. Member, American Medical Association
13. Founding Member, History of Pathology Society
14. Member, Society of Toxicologic Pathologists
15. Member, Sociedad Latino Americana de Patologia
16. Member, Asociacion Mexicana de Patologos, A.G., Mexico
17. Member, Latin America Pathology Foundation

Other Representations

1. Hispanic Employment Manager, AFIP
2. Consultant, Equal Employment Opportunity, AFIP
3. Member, Ash Library Committee, AFIP
4. Member, Executive Committee, AFIP
5. Member, Education Committee, AFIP
6. Chair, Tissue Utilization Committee, AFIP



Tamara A. Herdener, JD
Legal Counsel
Date of Appointment — 19 September 2005

OFFICE OF LEGAL COUNSEL

STAFF

Tamara A. Herdener, Legal Counsel
Alan Cash, Attorney Advisor (part-time)
Dwan Soto, Legal Assistant (part-time)

Stephen Bross, LTC, JA retired from the AFIP and from military service in May 2005. We are extremely thankful to LTC Bross for his 7 years of service at the AFIP. From May to September 2005, Alan Cash, Attorney Advisor from the Department of Legal Medicine, graciously served as Legal Counsel for the AFIP. We are thankful to Mr. Cash for serving the Institute during this time of transition. In September 2005, the AFIP hired a civilian attorney, Tamara Herdener, to serve as Legal Counsel.

The military JAG position is currently vacant, but we hope to fill it by summer of 2006. The legal office will be hiring a full-time legal assistant in spring of 2006. By summer of 2006, the Office of Legal Counsel will consist of one military attorney, one civilian attorney and a legal assistant.

ACCOMPLISHMENTS

The Office of Legal Counsel provides legal advice and assistance to the Director and staff of the AFIP. In 2005, Legal Counsel provided the following services to the Institute:

1. In ongoing coordination and consultation with the Executive Committee and as part of the periodic review process, we continued to study and develop various proposals for modifications to the Memorandum of Understanding between AFIP and ARP.
2. We provided substantial support and advice to the OAFME on a variety of matters, including issues affecting the OAFME in the Global War on Terrorism. Such support included:
 - Review of the requirements for release of autopsy reports.
 - Legal review and revision of MOA with FBI for DNA analysis.
 - Legal review and revision of MOA with NASA for support of space shuttle mission.
 - Legal representation at depositions of OAFME physicians.
 - Review of all agreements between the OAFME and various non-DoD agencies to ensure compliance with the Posse Comitatus Act. Such review was initiated by a recent ruling in *U.S. v. Johnson* which involved a violation by the federal government of the Posse Comitatus Act.
 - Legal review of various FOIA requests.
3. The office coordinated numerous requests to interview and depose Institute staff in connection with private litigation, or to obtain patient information relevant to litigation, and represented Institute and DoD interests at several such interviews and depositions while advising staff members providing the testimony.
4. The office continued its involvement as liaison to the Army Litigation Division and the Department of Justice with regard to pending tort claims and litigation. The office also provided support to Army Claims Service and Army Litigation Division on various claims filed against Army MTFs, as well as to various military prosecutors in courts martial.

5. As the Institute's designated agency ethics official and ethics counselor, Legal Counsel provided ethics training, prepared written and oral opinions and advisory letters for Institute leadership and individual staff members, and also managed the financial disclosure reporting required of certain staff members under the Joint Ethics Regulation. All AFIP personnel received face-to-face ethics training as prescribed by the Department of the Army.
6. Legal Counsel continued to provide advice on several copyright, licensing, software and nondisclosure issues. We continued to oversee technology transfer activities, including coordination on additional cooperative research and development agreement proposals and management of material transfer agreement documents.
7. Legal Counsel provided routine legal advice and guidance on the day-to-day work of the Institute in such areas as:
 - MOAs with other agencies for provision or exchange of technical and/or educational services, as well as agreements with nonfederal and foreign entities pertaining to research, education and training.
 - Requests by outside parties for access to patient records and tissues.
 - Attending IRB, Research, Quality Assurance and HIPAA committee meetings to offer legal advice and counsel.
 - Coordination with the AFIP Office of Public Affairs to offer legal advice and counsel when necessary, particularly in the areas of HIPAA and Privacy Act compliance.
 - Responding to biosurety and biosafety legal issues.
 - Civilian and military personnel administration, discipline, and investigations.
 - Offers by outside sources to pay employees' travel expenses.
 - Proposed revisions to Institute regulations.
 - Military administrative law matters.
 - Contract administration and procurement law matters.
 - Fiscal law matters, including the structure of reimbursable operations.
 - Issues specific to the operation of the National Museum of Health and Medicine.
8. Other matters of particular note include:
 - Substantial work to develop a standard operating procedure and handbook for processing of agreements.
 - Extensive continuing support to the Institute's development of HIPAA procedures.
 - Reviews of externally funded research protocols.
 - Confirmation by the Office of the DoD General Counsel for Health Affairs that AFIP may bill and retain proceeds for civilian consultation services.
 - Continuing response to legal issues concerning the disestablishment of the AFIP pursuant to the BRAC Commission decision and resulting issues related to the Tissue Repository.
 - Upgrading of office computer system.



Christopher C. Kelly
Director
Date of Appointment — 13 January 1991

OFFICE OF PUBLIC AFFAIRS

STAFF

Christopher C. Kelly, M Mgmt, Public Affairs Director
Michele R. Hammonds, BA, Public Affairs Specialist (called to active duty in Iraq)
Jacquelyn B. Flowers, BA, Public Affairs Specialist (1 April 1 – 1 October 2005)

IMPACT

The Office of Public Affairs provides a full range of external and internal communications programs in support of AFIP's essential military and civilian health care missions. During 2005 this was accomplished by:

- Publication of 3 comprehensive issues of *The AFIP LETTER*, distributed to over 16,000 pathologists worldwide.
- A variety of media relations programs.
- Arranging and conducting briefings for national and foreign dignitaries.
- Coordinating numerous special projects and events.
- Community relations programs.

The most significant media event of 2005 followed the publication in October of the 1918 Spanish flu genetic code by Dr. Jeffery K. Taubenberger, Chief, Department of Molecular Pathology. Dr. Taubenberger's findings received international media attention, and the Office of Public Affairs arranged for over 2 dozen print and electronic media outlets to conduct extensive interviews with him, notably *The New York Times*, *The Washington Post*, *The Los Angeles Times*, the Associated Press, BBC television and radio, NBC, CBS, CNN, and ABC News.

There was also extensive media interest in an internal DoD report on the causes of death of soldiers killed in Operation Iraqi Freedom and on the effectiveness of body armor supplied to deployed troops. AFIP also received multiple inquiries on forensic findings in the deaths of detainees in Afghanistan and Iraq, and on a number of other less-publicized death investigations surrounding U.S. military personnel.

Mr. Kelly represented the Institute at the 2005 USCAP Meeting in San Antonio, Texas in March.

Ms. Hammonds deployed to Iraq on active duty for the entire year. Joining the office as her replacement from April 1 through October 1 was Ms. Jacquelyn Flowers, who, among other duties, staffed AFIP exhibits at the Association of the U.S. Army Medical Symposium in San Antonio, Texas and at the Force Health Protection Conference in Louisville, Kentucky, and coordinated all aspects of the Association of Military Surgeons of the United States meeting in Nashville. She provided comprehensive feature stories on AFIP personnel and programs for publication in *The AFIP LETTER* and for broad release, organized and conducted the Institute's Newcomers' Briefings, and assisted with media relations.

During the year the office also coordinated the Institute's Ash Lecture events and hosted and briefed a number of military and civilian visitors and groups to the Institute.

EDUCATION

Courses: Office staff participated in one AFIP course in 2005.

Presentations

1. May 2005: Ashburn, Va, National Transportation Safety Board, Transportation Disaster

- Response Course: Mass Fatality Incidents for Medicolegal Professionals, "Media issues in mass fatality events," CC Kelly.
2. June 2005: Ashburn, Va, AFIP Forensic Anthropology Course, "Media issues in mass fatality events," CC Kelly.
 3. October 2005: Norfolk, Va, Emergency Services Media Relations Seminar, "Media issues in mass fatality events," CC Kelly.

PUBLICATIONS

1. Kelly CC, Hammonds MR, Flowers JB, Casey BL, eds. *The AFIP Letter*. Spring 2005;163.
2. Kelly CC, Hammonds MR, Flowers JB, Casey BL, eds. *The AFIP Letter*. Summer 2005;163.
3. Kelly CC, Hammonds MR, Flowers JB, Casey BL, eds. *The AFIP Letter*. Fall 2005;163.

PROFESSIONAL ACTIVITIES

Official Trips

1. January 2005, TRICARE Annual Meeting, Washington, DC, CC Kelly (AFIP).
2. March 2005, USCAP Annual Meeting, San Antonio, Tex, CC Kelly (AFIP).
3. June 2005, Association of the U.S. Army Medical Symposium, San Antonio, Tex, JB Flowers (AFIP).
4. August 2005, Force Health Protection Conference, Louisville, Ky, JB Flowers (AFIP).

Donna M. Roncarti, Col, USAF, BSC
Director
Date of Appointment — 1 September 2002

CENTER FOR CLINICAL LABORATORY MEDICINE

STAFF

Donna M. Roncarti, Col, USAF, BSC, Director
Dan E. Harms, COL, MSC, USA, Associate Director
Larry R. Ciolorito, CDR, MSC, USN, Associate Director
(D) William H. Boisvert, COL, MSC, USA, Associate Director
(D) Stephen G. Beardsley, COL, MSC, USA, Associate Director
Imelda Catalasan, Maj, USAF, BSC, Deputy Director, Office of Lab Management
(D) Denise T. Green, Lt Col, USAF, BSC, Deputy Director, Office of Lab Management
Gerry S. Rapisura, HMC, USN, LCPO, Navy CLIP Program Manager
Jacqueline M. Bryant, SFC, USA, Army CLIP Program Manager
Gary S. Brown, MSgt, USAF, Air Force CLIP Program Manager

IMPACT

The Center for Clinical Laboratory Medicine (CCLM) directs the operation of the DoD Clinical Laboratory Improvement Program (CLIP), as defined by DoD Instruction 6440.2 and Public Law 100-578 (Clinical Laboratory Improvement Act). CCLM administers public law and federal policy for military medical laboratory operations in peace, contingency and wartime, ensuring that no restrictions or cessation of laboratory services impede DoD mission requirements.

Regulatory Oversight

- Determines policy that provides guidance for all DoD military medical laboratory operations.
- Directs activities and funding of an operating budget of over \$3.5M annually for office administration and component central contracts for medical laboratory proficiency testing, accreditation and inspections.
- Resolves situations where public or state law is in conflict with DoD policy.
- Responds to congressional, military, or public inquiries relative to laboratory services.
- Reviews laboratory operations data, including proficiency testing results, accreditation and regulatory inspection results.
- Coordinates laboratory technical assistance and intervention strategies among DoD laboratories.

Consultative Services

- Provides consultative services and impact analysis on clinical laboratory issues to the Director, AFIP, to each service's Surgeon General, and to the Office of Assistant Secretary of Defense for Health Affairs.
- Provides professional and management guidance to DoD laboratory officers and enlisted members.
- Cochairs the DoD Laboratory Joint Working Group (LJWG).
- Gatekeeper for Tri-service and CDC initiative to develop a biological warfare detection and response system, i.e., National Laboratory Response Network.

EDUCATION

The department presented 3 workshops/seminars encompassing 120 man-hours of departmental time, with approximately 50 attendees.

ACTIVITIES

- Laboratory registration statistics, 2005:
 - o Army: 714 certificates, 1,340 sites
 - o Navy: 383 certificates, 735 sites
 - o Air Force: 340 certificates, 839 sites
- Enhancement/sustainment of CDC and Tri-Service Laboratory Response Network (LRN) Partnership Initiative. The purpose of the LRN is to rapidly detect and identify biological threat agents and alert public health and law enforcement agencies of a suspected release to minimize exposure to that agent. CCLM functions as the coordinating office for DoD participation in the LRN, as directed by the 3 Service SGs. CCLM must communicate, implement and ensure compliance with all changes in federal law regarding handling of select agents, specimen collection and testing protocols, and maintenance of proficiency by DoD network labs. To assist with communication/coordination responsibilities, CCLM made the update of LRN progress, activities and issues a standard agenda item at the biannual LJWG meetings.
- Saves over \$1M annually in registration and inspection fees. CCLM has avoided more than \$13M in fees to the Center for Medicare and Medicaid Services since inception of the program in 1993.
- Proficiency Testing (PT): All registered laboratories performing moderate- and/or high-complexity procedures were enrolled in centralized service-specific contracts during 2004. CCLM reviewed over 8,429 PT surveys for 2005. There were no instances of PT failure that required suspension, limitation or revocation of CLIP certification. Overall, PT performance for all surveys was 96.5%, well above the 80% standard.
- Accreditation: The College of American Pathologists, the Joint Commission on Accreditation of Healthcare Organizations, and the Commission on Office Laboratory Accreditation are all institutions that accredit DoD laboratory facilities. Each facility is inspected every 2 years, and results of inspections are forwarded to CCLM for review. CCLM maintains active liaison with DoD laboratory facilities and accrediting organizations, helping ensure effective communication, compliance, and problem resolution.
- Laboratory Composite Health Care System (CHCS) Interconnectivity: Supported ongoing effort to train DoD MTF lab personnel and deploy CHCS interconnectivity software to establish laboratory data transfer between DoD facilities, DoD and VA facilities, and DoD and civilian reference laboratories. Training/deployment has been completed for all DoD clinical labs. Refresher training is scheduled quarterly. Laboratory interoperability has significantly increased patient safety and improved quality of patient care by eliminating transcription errors and real-time retrieval of referral test results.
- Expediently notified all DoD laboratories and service logistics centers of reagent manufacturing and equipment problems during the past year.
- Championed adoption of the new recommendations made by the American College of Medical Genetics regarding expansion of newborn screening. CCLM has researched and written the Statement of Work, Technical Submission Requirements, and Technical Evaluation Factors required as part of an RFP to provide comprehensive screening under a uniform DoD contract with a commercial reference laboratory. These steps will provide for a comprehensive battery of screening tests at all DoD sites, greater standardization, and enhanced patient safety.
- Captured, evaluated and submitted data to AF/SG Manpower Office for AF laboratory manpower staffing model.
- Participated in both the Integrated Consortium of Laboratories Network (ICLN), and the DoD Laboratory Policy and Coordinating Group (LPCG). The ICLN, with CCLM membership on the Technology Subcommittee, began to identify the technology needed to link U.S. national assets, labs, processes, procedures, testing, standards, and scenarios. The LPCG has continued to work biodefense issues across the DoD, with specific concentration on laboratory requirements, testing protocols, and standards. Both groups focus on scenarios and their outcomes to identify requirements in testing and readiness to ensure the nation and DoD are prepared for any contingency.

PRESENTATIONS

1. January 2005: Washington, DC, Laboratory Joint Working Group, "Molecular/genetics test consolidation subcommittee report," DT Green.
2. January 2005: Washington, DC, Laboratory Joint Working Group, "CLIP/CLIAC update," W Boisvert.
3. January 2005: Washington, DC, Laboratory Joint Working Group, "LRN/biodefense issues," W Boisvert.
4. February 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "The ins and outs of workload recording," DT Green.
5. February 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "Clinical laboratory management indicators," DT Green.
6. February 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "Laboratory Joint Working Group," DT Green.
7. February 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "Laboratory standard cost methodology," DT Green.
8. February 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "AF manpower model," DT Green.
9. February 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "Clinical Laboratory Improvement Program," DT Green.
10. February 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "PT basics," DT Green.
11. February 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "LRN and biodefense," DT Green.
12. March 2005: Jacksonville, Fla, Society of Armed Forces Medical Laboratory Scientists 33rd Annual Meeting, "The evolving Laboratory Response Network (LRN) and its very long biosurety tail," W Boisvert.
13. March 2005: Jacksonville, Fla, Society of Armed Forces Medical Laboratory Scientists 33rd Annual Meeting, "Navy breakout session," LR Ciorlito.
14. August 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "The ins and outs of workload recording," I Catalasan.
15. August 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "Clinical laboratory management indicators," I Catalasan.
16. August 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "Laboratory Joint Working Group," I Catalasan.
17. August 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "Laboratory standard cost methodology," I Catalasan.
18. August 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "AF manpower model," I Catalasan.
19. August 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "Clinical Laboratory Improvement Program," I Catalasan.
20. August 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "PT basics," I Catalasan.
21. August 2005: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "LRN and biodefense," I Catalasan.

PUBLICATIONS

1. Roncarti DM. Consultant's Corner. *Society Scope: Society of Armed Forces Medical Laboratory Scientists Newsletter*. Fall 2005.
2. Ciorlito LR. Consultant's Corner. *Society Scope: Society of Armed Forces Medical Laboratory Scientists Newsletter*. Winter 2005.
3. Green DT, Catalasan I. BOMO Lab Break-Out: A Compendium of Laboratory Management Topics and Issues. Self-published CD.



Geoffrey W. Rake, MD, MSA
Director
Date of Appointment — 6 October 2003
(contractor, 2 September - 3 October 2003)

DEPARTMENT OF DEFENSE PATIENT SAFETY CENTER

STAFF

Professional

- (A) Michael Datena, Lt Col, USAF, Pharmacist, Deputy Director
- (D) Ronald Nosek, CDR(P), USN, Pharmacist, Deputy Director
- Rajasri Roy, PhD, Epidemiologist (contractor)
- Bridget Olson, Human Factors Engineer (contractor)
- Mary Ann Davis, RN, Safety Officer (contractor)
- Pamela Copeland, RN, JD, Safety Officer (contractor)
- Juanita Gray, Data Analyst (contractor)
- Richard Hildreth, Information Systems (contractor)

Administrative

- Peter Stifel, Administrator (contractor)
- Pamela Oetgen, Newsletter Editor (contractor)
- Nanette Barry, Secretary (contractor)
- (A) Karen Ashbrook-Barnes, Technical Writer (contractor)

IMPACT

Established in 2000, the Patient Safety Center (PSC) maintains the DoD Registry for patient safety data collected by the services from 170 military medical and dental clinics and hospitals worldwide.

In 2005, the PSC produced 4 Quarterly Summaries and the second Annual Summary of Information Reported to the PSC, quarterly Patient Safety Newsletters, bimonthly DoD Patient Safety Hot Topics (focused on breaking relevant information for facility patient safety officers), and 4 DoD Patient Safety Alerts. The PSC produced the first Patient Safety Toolkit targeting patient fall reduction. The PSC actively participated in procuring a commercial of the shelf patient safety reporting (PSR) system with a successful Proof of Concept which was followed by the longer-range DoD-wide acquisition. Deployment of PSR is planned for late 2006, serving medical treatment facilities and service and DoD patient safety needs. Lastly, planning is in progress to move the Patient Safety Center from the AFIP to the TRICARE Management Activity in 2006.

CONSULTATION

The DoD PSC Registry collects, analyzes, and reports cases on a fiscal-year basis. Cases are collected in 4 separate streams: Monthly Summary Reports of nonmedication events (includes near misses and actual events), MEDMARX medication error events, Root Cause Analyses (RCA), and Failure Mode and Effects Analyses (FMEAs).

Cases	Total
Monthly Summary Reports (nonmedication events)	61,586
MEDMARX (medication events)	
Inpatient	8,242
Outpatient	32,448
RCAs	97
FMEAs	86

EDUCATION

Department staff participated in 15 courses in 2005, serving 348 trainees.

Presentations

January

- DoD Enhanced Patient Safety Manager Workshop, Failure Mode and Effect Analysis (FMEA), Rockville, Md, PSC/CERPS, B Olson.
- DoD Enhanced Patient Safety Manager Workshop, Patient Safety Tools: Advanced MEDMARX, Rockville, Md, DoD/PSC/CERPS/US Pharmacopeia, R Nosek.
- DoD Patient Safety Leadership Forum, Rockville, Md, G Rake.

February

- DoD Patient Safety Regional Training Workshop, Failure Mode and Effect Analysis (FMEA), Ft Benning, Ga, PSC/CERPS, B Olson.

April

- DoD Basic Patient Safety Manager Workshop, Failure Mode and Effect Analysis (FMEA), Rockville, Md, PSC/CERPS, B Olson.
- DoD Basic Patient Safety Manager Workshop, Patient Safety Tools: MEDMARX, Rockville, Md, PSC/CERPS/US Pharmacopeia, R Nosek.
- DoD Patient Safety Leadership Forum, Rockville, Md, G Rake.

June

- DoD Basic Patient Safety Manager Workshop, Failure Mode and Effect Analysis (FMEA), Rockville, Md, PSC/CERPS, B Olson.
- DoD Basic Patient Safety Manager Workshop, Patient Safety Tools: MEDMARX, Rockville, Md, DoD PSC/CERPS/US Pharmacopeia, R Nosek.
- DoD Patient Safety Leadership Forum, Rockville, Md, G Rake.

August

- DoD Patient Safety Regional Training Workshop, Failure Mode and Effect Analysis (FMEA), Tripler Army Medical Center, Hawaii, PSC/CERPS, B Olson.
- DoD Patient Safety Regional Training Workshop, Patient Safety Tools: MEDMARX, Tripler Army Medical Center, Hawaii, DoD/PSC/CERPS/US Pharmacopeia, M Datena.

October

- Combined Forces Pharmacy Seminar, San Diego, Calif, M Datena.

December

- DoD Basic Patient Safety Manager Workshop, Failure Mode and Effect Analysis (FMEA), Rockville, Md, PSC/CERPS, B Olson.
- DoD Basic Patient Safety Manager Workshop, Patient Safety Tools: MEDMARX, Rockville, Md, DoD PSC/CERPS/ US Pharmacopeia, M Datena.
- DoD Patient Safety Leadership Forum, Rockville, Md, G Rake.

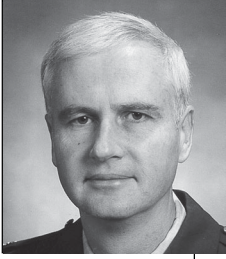
PROFESSIONAL ACTIVITIES

Official Trips

1. January 2005, TRICARE Conference, Washington, DC, G Rake (DoD PSC).
2. April 2005, Institute for Quality in Laboratory Medicine Conference, Atlanta, Ga, G Rake (DoD PSC).
3. May 2005, National Patient Safety Foundation Congress, Orlando, Fla, G Rake DoD PSC).
4. April 2005, Evidence-Based Strategies for Patient Falls and Wandering, Clearwater, Fla,

P Copeland.

5. June 2005, AHRQ Turning Research into Programs and Policy, Washington, DC, G Rake, P Copeland, M Davis, R Nosek (DoD PSC).
6. October 2005, Combined Forces Pharmacy Seminar, San Diego, Calif, M Datena.
7. December 2005, Pharmacovigilance Symposium, Frederick, Md, G Rake, M Datena.



Frank T. Flannery, MD, JD
Chair
Date of Appointment — 9 October 1990

DEPARTMENT OF LEGAL MEDICINE

STAFF

Medical

Frank T. Flannery, MD, JD
Richard L. Granville, MD, JD
William J. Oetgen, MD, MBA
Alfred S. Buck, MD
Susan Freeburn, RN

Legal

Alan P. Cash, RN, JD
Jill E. Thach, JD

Administrative

Kevin Slaton, TSgt, USAF
Herman Furlow, Administrative Assistant
Daniel Wheatley, MS, Statistics Specialist
Mary Ann Millett, Credentials Manager
(D) Amy Wynkoop, Credentials Manager
(D) Angela Dowzicky, Credentials Manager
Patricia Broseker, Administrative Assistant
Mary Conneran, Administrative Assistant
Michael Orlowski, Legal Assistant

IMPACT

The Department of Legal Medicine has a major impact on quality assurance and risk management and provides valuable assistance to the Office of the Assistant Secretary of Defense for Health Affairs (OASD(HA)), the Tricare Management Activity (TMA), and the services. Three major activities in 2005 were 1) continued use and analysis of data obtained from the Centralized Credentials Quality Assurance System (CCQAS), 2) expanded use of the Public Use File of the National Practitioner Data Bank as an important source of private-sector data for OASD(HA), and 3) participation in the DoD's Maximus External Peer Review Program to ensure compliance with the statement of work for this important quality management function.

1. CCQAS was developed over the past 11 years to facilitate credentials management in the DoD, with the goal of speeding deployment and movement of health care providers in support of military operations. Today, CCQAS continues to undergo further modification and development. Our department's role in this process is as the DoD component analyzing medical malpractice cases, adverse privileging actions, and disability cases within CCQAS. Analysis and reporting of this information is highly military-relevant as it improves the quality of medical care for our soldiers in peacetime and during major deployments. Especially important is the analysis of data regarding care provided to active duty soldiers.

2. The second major impact area for the Department of Legal Medicine in 2005 was use of the National Practitioner Data Bank for private sector comparison data. Comparison of rates of payment data has proven useful to OASD(HA).

3. Our third major impact in 2005 was active participation in the analysis and review of several hundred military paid medical malpractice cases. Detailed analysis of various issues including standard of care, causation, and system issues is an important part of this case review process.

This effort was performed in coordination with OASD(HA) and TMA. Identification of high-risk medical practices and procedures, providing the opportunity to appropriately target quality assurance efforts, is highly relevant to improving the quality of medical care in the military health system.

QUALITY MANAGEMENT/RISK MANAGEMENT/CREDENTIALS MANAGEMENT CONSULTATION

<i>Cases</i>	<i>Completed</i>
Military	335
Army (134)	
Navy (118)	
Air Force (56)	
Coast Guard (27)	
Federal	315
DoJ (BOP) (226)	
Department of Homeland Security (38)	
DoJ (PSOB) (49)	
HHS IG (2)	
Interdepartmental	2
Total	652

The department is actively involved in medical, legal, and credentials consultation for DoD and other federal agencies. The highest priority has always been military-relevant DoD projects.

- We participate in and provide statistical input to a number of senior-level DoD committees related to quality improvement and risk management. A primary focus of the department has been active involvement with the DoD Risk Management Committee chaired by OASD(HA), assisting in the analysis of aggregate tri-service malpractice data. We obtain medical malpractice data from the Department of the Treasury and report to the committee and the 3 services to enable DoD to monitor and respond in an appropriate, timely manner to paid medical malpractice cases. We also participate in the TRICARE Clinical Quality Forum. Members of the department periodically provide briefings to this senior-level DoD committee regarding our activities at AFIP, including CCQAS data, malpractice case information, Treasury data, and Feres-barred (active duty) cases. We provide ongoing assistance in the further development of the DoD's CCQAS through participation on various committees. In 2005 we continued to modify the structure and content of the Risk Management, Disability and Adverse Actions modules of this large database, as well as the ad hoc and standard reporting features.
- We are actively involved with the Maximus External Peer Review Program (Maximus). Paid medical malpractice cases, which meet the standard of care at the offices of the respective Surgeons General, have been reviewed by Maximus as an external entity under contract to DoD. We play an important role in insuring that all medical-legal review aspects conform to the particulars of the statement of work so that the contractor adequately addresses the issues of standard of care, causation, and system issues. The department analyzes the cases and provides feedback to OASD(HA).
- We play a valuable role in monitoring DoD malpractice payments with the Department of the Treasury. On a monthly basis, we collect and analyze financial reports from Treasury in order to assist OASD(HA) in monitoring DoD medical malpractice payments and trends. This project is important because these figures are used for comparison with the larger database in the private sector. Treasury data also facilitate notification to the 3 Offices of the Surgeons General of newly paid medical malpractice cases so that they can meet their statutory requirement of reporting to the National Practitioner Data Bank in a timely fashion.
- We analyze the Risk Management, Disability, and Adverse Action modules of the CCQAS. In 2005 we actively participated on the CCQAS Configuration Control Board with the military services to further refine these modules and enhance the usefulness of reports produced from these databases.
- In the area of credentials management, in 2005 we developed a new sharing agreement with the United States Coast Guard to verify the credentials of its health care providers. We have also continued our valuable DoD credentials work through a sharing agreement with the

Navy Recruiting Command by verifying the credentials and claims histories of health care providers who have applied to be accessioned as military personnel for the Department of the Navy. We have continued our sharing agreement with the Bureau of Prisons in the evaluation and prime source verification of the credentials of newly hired health care providers for the DoJ.

- We provide case review for other federal agencies through sharing agreements. Currently, active sharing agreements include those with the Department of Health and Human Services Inspector General's Office, the Bureau of Prisons (General Counsel), and the Public Safety Officer's Benefit Program (PSOB) for the DoJ. PSOB cases are reviewed to determine whether injured law enforcement officers or public safety officers are eligible to obtain benefits through that program after appropriate evaluation. These medical-legal reviews are important to the agencies involved in determining the standard of care, causation, and injury elements of these health care-related cases.
- Related to our consultation mission is maintenance of the repository at Forest Glen of over 19,000 closed DoD medical malpractice cases. This DoD-wide repository has existed since 1990. In 2005, we accessioned and catalogued 1,711 closed DoD medical malpractice cases, including risk management closed case files from the Office of the Air Force Surgeon General. In 2005, in conjunction with the Department of Repository and Research Services at AFIP, we worked with an outside contractor to image medical malpractice claim files in the repository. About 10,000 cases have been imaged to date, preserving claim files in an electronic format and decreasing file storage space. The repository is highly military-relevant since the 3 Offices of the Surgeons General often need these records to determine standard of care in paid medical malpractice cases. The repository has also been used in an ongoing collaborative relationship between the American Society of Anesthesiology and the Department of Legal Medicine to reduce liability for anesthesia providers and improve patient care.

EDUCATION

In 2005 we again produced our annual risk management journal, *Legal Medicine*. By completing a quiz, physicians earn 5 category I CME credits, provided free of charge to military and full-time federal physicians. Approximately 16,000 CME credits were awarded in 2005, a substantial portion of which were to military and federal civilian physicians.

Legal Medicine has proven military relevance to remotely deployed personnel who are unable to attend conferences. Our evaluation survey shows that over 99% of military subscribers state that *Legal Medicine* is relevant to their practice of medicine in the MHS. We send *Legal Medicine* to military medical libraries and to each military treatment facility to insure its broadest dissemination.

Trainees

The department provided medical-legal training to a number of USUHS and Georgetown University medical students in 2005.

Faculty Appointments

Clinical Assistant Professor, Georgetown University Medical School, FT Flannery.

Presentations

1. April 2005: Washington, DC, "Medical malpractice update," FT Flannery.
2. April 2005: Washington, DC, Tricare Clinical Quality Forum, "Overview of medical malpractice in the Department of Defense," RL Granville.
3. February 2005: Washington, DC, "U.S. Coast Guard Credentials Verification Program," S Freeburn.
4. June 2005: Philadelphia, Pa, "U.S. Coast Guard Credentials Verification Program," S Freeburn.

RESEARCH

Journal Articles

1. Flannery FT. Recent court decisions. *Legal Med.* 2005:6-17.
2. Granville RL. Standards of care in medical malpractice cases for medical residents: implications for quality improvement. *Legal Med.* 2005:18-24.
3. Somerville J. Ethical considerations when presenting pain medication. *Legal Med.* 2005:25-32.

4. Cash AP. Retention of foreign bodies after a procedure. *Legal Med.* 2005:33-9.
5. Buck AS. Credentialing: a current perspective. *Legal Med.* 2005:40-50.

PROFESSIONAL ACTIVITIES

Official Trips

1. February 2005, National Credentialing Forum, Laguna Beach, Calif, S Freeburn (ARP).
2. May 2005, CCQAS Update, CNRC Jacksonville, Fla, S Freeburn (ARP).

Editorial Boards

1. *Federal Practitioner*, FT Flannery
2. *Military Medicine*, RL Granville
3. *Nursing Risk Management*, AP Cash

DIRECTORATE OF ADVANCED PATHOLOGY



Sumitra Parekh
COL, MC, USA
Director, Advanced Pathology

GROUP 1—

Genitourinary Pathology (Nephropathology)
Gynecologic & Breast Pathology
Neuropathology (Ophthalmic Pathology)

GROUP 2—

Dermatopathology
Soft Tissue Pathology
Oral & Maxillofacial Pathology
Endocrine & Otorhinolaryngic/Head-Neck
Pathology

GROUP 3—

Hematopathology
Veterinary Pathology
Environmental & Infectious Disease Pathology

GROUP 4—

Hepatic & Gastrointestinal Pathology
Pulmonary & Mediastinal Pathology

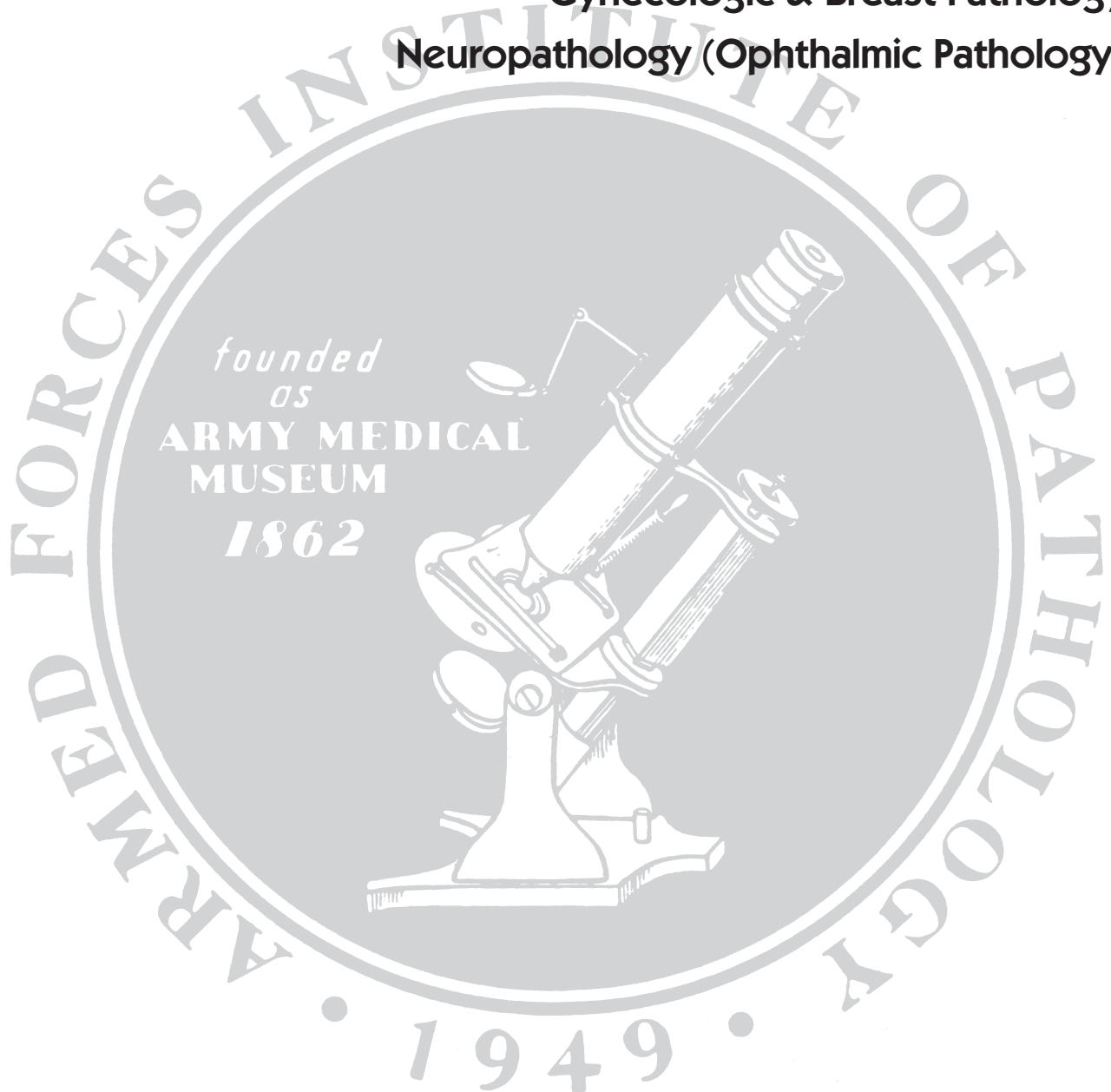
ADVANCED PATHOLOGY

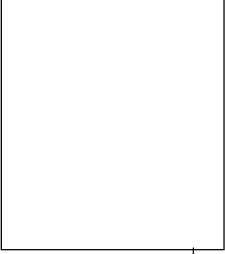
GROUP 1

Genitourinary Pathology (Nephropathology)

Gynecologic & Breast Pathology

Neuropathology (Ophthalmic Pathology)





Isabell A. Sesterhenn, MD
Chair
Date of Appointment — May 2004

DEPARTMENT OF GENITOURINARY PATHOLOGY AND NEPHROPATHOLOGY

STAFF

Medical

Isabell A. Sesterhenn, MD, Chair
Charles J. Davis, Jr, MD, ARP
Raj Shekar, COL, MC, USA, Staff Pathologist
William Winecoff, COL, MC, USA
Sharda G. Sabnis, MD (Nephropathology)
(D) Thomas R. Himes, CAPT, MC, USN (Nephropathology)

Scientific

Frank A. Avallone, Research Biologist
Denise Young, Histopathology Technologist, ARP
Rex C. Hartzoge, Histopathology Technologist
Bungo Furusato, MD, Fellow (GU Pathology)
(D) Armida Orozco, MD, Callender-Binford Fellow (Nephropathology)
(A) Anandita Datta, MD, Callender-Binford Fellow (Nephropathology)

Administrative

Renee Upshur-Tyree, Administrator
Annette D. Allen, Secretary, VA
Vera Pettus, Medical Secretary
Paulette Crampton, Secretary (Nephropathology)

IMPACT

- The department's relevance to the Institute can be seen in the GU laboratory's provision of immunohistochemistry, immunofluorescence, and in situ hybridization for this and 10 other departments of the AFIP, and for the Urology and Pathology Services of WRAMC, Malcolm Grow, Ireland Medical Center, OAFME, and the Naval Medical Center Camp Pendleton.
- Our relevance to the military in general is illustrated by our role as the pathology center for the Center for Prostate Disease Research, a triservice prostate specimen repository mandated by Congress and authorized in Public Law 102-172. In this capacity, we frequently provide personal consultations to members of Congress and high-ranking military officers. We collaborated with the Center for Prostate Disease Research on gene expression profiling in formalin-fixed, paraffin-embedded specimens. This methodology will greatly enhance the use of specimens representing malignant and nonmalignant diseases of the genitourinary tract.
- Our contributions to civilian and military medicine entail not only our consultation work but our service as the WHO Collaborating Center for Histological Classification of Tumors of the Urinary Tract and Male Sex Organs. Also, the GU registries, with their vast repository of typical and unusual diseases, are a unique contribution to molecular pathology.

- Nephropathology Division staff served as the primary pathologists in most of the cases, performing light, immunofluorescence, and electron microscopy to render the final diagnosis. This includes time-consuming research for clinical data and discussion with clinicians or contributing pathologists to arrive at the final diagnosis. The staff uses immunohistochemistry (peroxidase method) when tissue for immunofluorescence microscopy is inadequate. Among the 399 human kidney biopsies, 312 (78%) were from federal institutions and 87 (22%) were from civilian contributors. Average case turnaround time was 7 days.

CONSULTATION

In 2005, the number of consultations on difficult kidney tumors and bladder tumors in young patients increased. However, most of our surgical consultations were on prostate specimens, many of which are from patients in their forties and fifties.

Because of screening programs, we are seeing biopsies on totally asymptomatic patients who are found to have elevated PSA, a nodule on digital rectal examination, or an abnormal ultrasound. These biopsies, especially in a group of young patients from whom 6 or more biopsy specimens were taken, have led to problems in interpretation because we encounter changes not seen before. The major problem in these cases is whether the carcinoma represents latent cancer (prostatic cancer found in patients who die of other causes). The problem is compounded by the fact that many patients have been pretreated with a variety of new drugs. Most of our prostate biopsies are received from active members of the military and VA.

The overall number of consultations was stable: 26% were civilians and 74% were military and VA cases. In 2005, 60% of cases required either a diagnostic change or were submitted without a contributor's diagnosis. A minor diagnostic change can have a major impact on clinical management.

GENITOURINARY PATHOLOGY

<i>Cases</i>	<i>Completed</i>
Military	1,018
Army (567)	
Navy (181)	
Air Force (270)	
Federal (VA)	1,583
Civilian	917
Interdepartmental	252
Total	3,770

NEPHROPATHOLOGY

<i>Cases</i>	<i>Completed</i>
Total surgical cases	399
Military	211
Army (140)	
Air Force (15)	
Federal	101
VA (89)	
PHS (12)	
Civilian	87
Interdepartmental (27+26 walk-ins)	53
Total	452

The department provided telepathology consultation on 21 cases (7.6% of all telepathology cases) to national and international sites including military. Half of the telepathology cases were military.

We made no change in the contributor's diagnosis in 1,382 cases, a minor change in diagnosis in 1,576 cases, and a major change in diagnosis in 130 cases and received 387 cases with no contributor diagnosis.

The Division of Nephropathology interpreted 399 renal biopsies, including electron microscopy. 78% were military and VA and 22% were civilian cases.

EDUCATION

Courses: Department staff participated as faculty in 4 courses in the United States and abroad. Two courses (bladder and penis) are available on the Internet, as are virtual slides on 150 entities of the genitourinary tract.

Trainees: Two urology residents from WRAMC spent 2 months each in the department and additional time, as required, on joint research projects. We had 9 federal employees, 3 foreign nationals, and 2 nonfederal trainee for a total 249 days.

Faculty Appointments

IA Sesterhenn:

1. Assistant Professor of Pathology, USUHS, Bethesda, Md.
2. United States Military Cancer Institute, WRAMC.

CJ Davis:

1. Assistant Professor of Pathology, USUHS, Bethesda, Md.
2. United States Military Cancer Institute, WRAMC.

Presentations

1. January 2005: Military Hospitals of the Army, Navy, and Air Force, Video Teleconference: Pathology of Kidney Tumors.
2. February 2005: Military Hospitals of the Army, Navy, and Air Force, Video Teleconference: Pathology of Testis Tumors.
3. February 2005: USCAP Annual Meeting.
4. March 2005: WRAMC, NNMC, Pathology of Prostate, Kidney, Testis and Bladder (4 lectures).
5. April 2005: Bethesda, Md, Suburban Hospital Grand Rounds.
6. April 2005: AFIP Anatomic Pathology Course.
7. May 2005: Wilford Hall and Brooke Army Medical Center, Virtual Slide Conference, "Bladder and prostate lesions," IA Sesterhenn.
8. May 2005: San Antonio, Tex, AUA Meeting.
9. June 2005: Landstuhl, Germany, Landstuhl Army Medical Center Pathology and Urology Departments, "Review on prostate, bladder, kidney and testis lesions," IA Sesterhenn.
10. June 2005: Anchorage, Alaska, Elmendorf AFB, "Review of surgical pathology specimens and virtual slides," IA Sesterhenn.
11. June 2005: WRAMC, Virtual Slide Conference, IA Sesterhenn.
12. July 2005: AFIP, Annual F.K. Mostofi Urological Course.
13. July 2005: Tokyo, Japan, Kyorin University, Urological Pathology Course.
14. August 2005: Naaldwijk, Netherlands, 1st Collaborative Scientific Meeting Between Erasmus Medical Center Rotterdam (Department of Pathology) and the Ride for the Roses, "Testicular germ cell tumors in a broader perspective."
15. October 2005: Seattle, Wash, ASCP Meeting, "AIPNA pathology today."

RESEARCH

Journal Articles

1. Xu LL, Sun C, Petrovics G, Makarem M, Furusato B, Zhang W, Sesterhenn IA, McLeod DG, Sun L, Moul JW, Srivastava S. Quantitative expression profile of PSGR in prostate cancer. *Prostate Cancer Prostatic Dis.* 2005 Oct 18; [Epub ahead of print].
2. Petrovics G, Liu A, Shaheduzzaman S, Furusato B, Sun C, Chen Y, Nau M, Ravindranath L, Chen Y, Dobi A, Srikantan V, Sesterhenn IA, McLeod DG, Vahey M, Moul JW, Srivastava S. Frequent overexpression of ETS-related gene-1 (ERG1) in prostate cancer

- transcriptome. *Oncogene*. 2005;24:3847-52.
3. Kirkali Z, Chan T, Manoharan M, Algaba F, Busch C, Cheng L, Kiemeny L, Kriegmair M, Montironi R, Murphy WM, Sesterhenn IA, Tachibana M, Weider J. Bladder cancer: epidemiology, staging and grading, and diagnosis. *Urology*. 2005;66:4-34.
 4. Hood BL, Darfler MM, Guiel TG, Furusato B, Lucas DA, Ringeisen BR, Sesterhenn IA, Conrads TP, Veenstra TD, Krizman DB. Proteomic analysis of formalin-fixed prostate cancer tissue. *Mol Cell Proteomics*. 2005;4:1741-53. Epub 2005 Aug 9.
 5. Laskin WB, Fetsch JF, Davis CJ Jr, Sesterhenn IA. Granular cell tumor of the penis: clinicopathologic evaluation of 9 cases. *Hum Pathol*. 2005;36:291-8.
 6. Bai Y, Gao YT, Deng J, Sesterhenn IA, Fraumeni JF, Hsing AW. Risk of prostate cancer and family history of cancer: a population-based study in China. *Prostate Cancer Prostatic Dis*. 2005;8:60-5.
 7. Chu WS, Furusato B, Wong K, Sesterhenn IA, Mostofi FK, Wei MQ, Zhu Z, Abbondanzo SL, Liang Q. Ultrasound-accelerated formalin fixation of tissue improves morphology, antigen and mRNA preservation. *Mod Pathol*. 2005;18:850-63.

Abstracts

1. Davis CJ, Sesterhenn IA. Malignant mesotheliomas of tunica vaginalis. USCAP 94th Annual Meeting, San Antonio, Tex, 2005.
2. Furusato B, Shaheduzzaman S, Petrovics G, Ravindranath L, Nau M, McLeod DG, Vahey M, Srivastava S, Sesterhenn IA. Gene expression signatures in benign and malignant epithelial cells from formalin-fixed paraffin-embedded prostatectomy. USCAP 94th Annual Meeting, San Antonio, Tex, 2005.
3. De Marzo AM, Platz EA, Epstein JI, Billis A, Chan TY, Cheng L, Datta M, Ertoy-Baydar D, Farre X, Fine S, Ickowski KA, Ittmann M, Knudsen BS, Loda M, Lopez-Beltran A, Magi-Galluzzi C, Mikuz G, Montironi R, Rubin MA, Sebo T, Sesterhenn IA, Shah R, Signoretti S, Simko J, Troncso P, Tsuzuki T, van Leenders GJ, Yang X, Zhou M, Figg WD, Hoque A, Lucia MS. Interobserver reproducibility of a proposed classification of focal prostate atrophy lesions. USCAP 94th Annual Meeting, San Antonio, Tex, 2005.
4. Petrovics G, Liu A, Shaheduzzaman S, Furusato B, Sun C, Chen Y, Nau M, Ravindranath L, Chen Y, Dobi A, Srikantan V, Sesterhenn IA, McLeod DG, Vahey M, Moul JW, Srivastava S. Frequent expression alterations of ETS-related gene (ERG) in prostate cancer transcriptome reveals its diagnostic and prognostic potential. 52nd Annual James C. Kimbrough Urological Seminar, Honolulu, Hawaii, 2005.
5. Gu Y, Kim KH, Furusato B, Sesterhenn IA, McLeod DG, Moul JW, Srivastava S, Ewing CM, Isaacs WB, Rhim JS. Phenotypic characterization of telomerase immortalized primary non-malignant and malignant tumor-derived human prostate epithelial cell cultures. Poster presentation, Abstract No. 3902, AACR 96th Annual Meeting, Anaheim, Calif, 2005.
6. Shaheduzzaman S, Srikantan V, Petrovics G, Liu A, Furusato B, Sun C, Chen Y, Nau M, Ravindranath L, Chen Y, Dobi A, Sesterhenn IA, McLeod DG, Vahey M, Moul JW, Srivastava S. Frequent expression alterations of ETS-related gene (ERG) in prostate cancer transcriptome. Poster presentation, Abstract No. 3745, AACR 96th Annual Meeting, Anaheim, Calif, 2005.
7. Kim KH, Gu Y, Shaheduzzaman S, Dobi A, Srikantan V, Gao CL, Masuda K, Oh S, Valladares M, Furusato B, Petrovics G, Sesterhenn IA, Moul JW, McLeod DG, Srivastava S, Rhim JS. Establishment and molecular characterization of androgen-responding human prostate epithelial cell line from an African American prostate cancer patient. Poster presentation, Abstract No. 1973, AACR 96th Annual Meeting, Anaheim, Calif, 2005.
8. Petrovics G, Liu A, Shaheduzzaman S, Furusato B, Sun C, Chen Y, Nau M, Ravindranath L, Chen Y, Dobi A, Sesterhenn IA, McLeod DG, Vahey M, Moul JW, Srivastava S. ETS-related gene-1 (ERG1), a frequent proto-oncogenic alteration in prostate cancer transcriptome. GOT Summit, World Trade Center, Boston, Mass, 2005.
9. Gu Y, Kim KH, Furusato B, Sesterhenn IA, McLeod DG, Moul JW, Srivastava S, Ewing CM, Isaacs WB, Rhim JS. Phenotypic characterization of telomerase immortalized primary non-malignant and malignant tumor-derived human prostate epithelial cell cultures. Poster presentation, USUHS Research Week, Bethesda, Md, 2005.
10. Rosner I, Ravindranath L, Furusato B, Chen Y, Sesterhenn I, McLeod DG, Srivastava S, Petrovics G. Quantitative gene expression analysis of androgen receptor in benign and neoplastic prostate cancer cells of patients with prostate cancer may predict PSA recurrence. Poster presentation, USUHS Research Week, Bethesda, Md, 2005.
11. Shaheduzzaman S, Petrovics G, Liu A, Furusato B, Sun C, Chen Y, Nau N, Ravindranath L,

- Chen Y, Dobi A, Srikantan V, Sesterhenn IA, McLeod DG, Vahey M, Moul JW, Srivastava S. ETS-related gene-1 (ERG1), a frequent proto-oncogenic alteration in prostate cancer transcriptome. USUHS Research Week, Bethesda, Md, 2005.
12. Vishwanath A, Furusato B, Petrovics G, Nau M, Ravindranath L, Chen Y, Srikantan V, Sesterhenn IA, McLeod DG, Vahey M, Moul JW, Srivastava S, Shaheduzzaman S. Frequent expression alterations and biological function of lactotransferrin (LTF) in prostate cancer. Poster presentation, USUHS Research Week, Bethesda, Md, 2005.
 13. Banez LL, Furusato B, Prasanna P, Chen Y, Ali A, Moul JW, McLeod DG, Sesterhenn IA, Srivastava S. Evaluation of serum proteomic SELDI-TOF spectral data and tumor volume in patients with prostate adenocarcinoma. Poster presentation, USUHS Research Week, Bethesda, Md, 2005.
 14. Gao L, Shaheduzzaman S, Petrovics G, Furusato B, Nau M, Ravindranath L, Chen Y, Srikantan V, McLeod DG, Vahey M, Sesterhenn IA, Srivastava S. Gene expression signatures of prostate cancer with poor prognosis. Poster presentation, USUHS Research Week, Bethesda, Md, 2005.
 15. Li H, Kim KH, Gu Y, Shaheduzzaman S, Dobi A, Srikantan V, Gao CL, Masuda K, Oh S, Valladares M, Furusato B, Petrovics G, Sesterhenn I, Moul JW, McLeod DG, Srivastava S, Rhim J. Molecular characterization of wild-type androgen expressing benign prostate epithelial cell line from African American prostate cancer patient. Poster presentation, USUHS Research Week, Bethesda, Md, 2005.
 16. Ravindranath L, Furusato B, Petrovics G, Gao C, Ali A, Rhim J, Moul JW, Sesterhenn IA, McLeod DG, Srivastava S. Center for Prostate Disease Research Biospecimen Resource. Poster presentation, USUHS Research Week, Bethesda, Md, 2005.
 17. Banez LL, Furusato B, Prasanna P, Chen Y, Ali A, Moul JW, McLeod DG, Sesterhenn IA, Srivastava S. Evaluation of serum SELDI-TOF proteomic information and tumor volume in prostate cancer patients. Poster presentation, AUA Annual Meeting, San Antonio, Tex, 2005.
 18. Rosner IL, Furusato B, Dickason TJ, Davis CJ, Moul JW, Sesterhenn IA, McLeod DG. Correlation of one core positive biopsy for cancer with index or total tumor volume less than 0.5cc in prostatectomy specimens. AUA Annual Meeting, San Antonio, Tex, 2005.
 19. Shaheduzzaman S, Furusato B, Srikantan V, Petrovics G, Nau M, Valladares M, Zhang W, Sesterhenn IA, Vahey M, McLeod DG, Moul JW, Srivastava S. Gene expression/biochemical pathway signatures of prostate cancer cells of patients with high risk and moderate risk progression of disease. Poster presentation, AUA Annual Meeting, San Antonio, Tex, 2005.
 20. Srikantan V, Petrovics G, Liu A, Shaheduzzaman S, Furusato B, Sun C, Chen Y, Nau M, Ravindranath L, Chen Y, Dobi A, Sesterhenn IA, McLeod DG, Vahey M, Moul JW, Srivastava S. Frequent overexpression of ETS-related gene (ERG) in prostate cancer transcriptome reveals its diagnostic and prognostic potential. Poster presentation, AUA Annual Meeting, San Antonio, Tex, 2005.
 21. Rosner IL, Ravindranath L, Furusato B, Chen Y, Cullen J, Sesterhenn IA, McLeod DG, Srivastava S, Petrovics G. Quantitative gene expression analysis of androgen receptor in benign and neoplastic prostate epithelial cells may predict PSA recurrence. Poster presentation, Mid Atlantic AUA, Phoenix, Ariz, 2005.
 22. Gu Y, Li H, Miki J, Furusato B, Sesterhenn IA, Moul JW, McLeod DG, Srivastava S, Ewing CM, Isaacs WB, Rhim JS. Novel human prostate cell models for study of prostate carcinogenesis and for testing chemopreventive and therapeutic agents. Oral presentation, 2nd International Conference on Tumor Progression and Therapeutic Resistance, Boston, Mass, 2005.
 23. Gu Y, Li H, Miki J, Kim K, Furusato B, Sesterhenn IA, Chu W, McLeod DG, Ewing CM, Srivastava S, Isaacs WB, Rhim JS. Characterization of telomerase-immortalized primary non-malignant and malignant tumor-derived human prostate epithelial cell cultures. Poster presentation, Society for Basic Urological Research 15th Annual Meeting, Miami Beach, Fla, 2005.
 24. Shaheduzzaman S, Vishwanath A, Furusato B, Petrovics G, Nau M, Ravindranath L, Chen Y, Srikantan V, Sesterhenn IA, McLeod DG, Vahey M, Moul JW, Srivastava S. Frequent expression alterations and biological function of lactotransferrin (LTF) in prostate cancer. Poster presentation, Society for Basic Urological Research 15th Annual Meeting, Miami Beach, Fla, 2005.
 25. Vaidyanathan G, Shaheduzzaman S, Furusato B, Srikantan V, Sesterhenn IA, McLeod DG,

- Srivastava S, Petrovics G. Prognostic potential of ERG1 expression in prostate cancer. Poster presentation, Society for Basic Urological Research 15th Annual Meeting, Miami Beach, Fla, 2005.
26. Petrovics G, Vaidyanathan G, Shaheduzzaman S, Furusato B, Srikantan V, Sesterhenn IA, McLeod DG, Srivastava S. Prognostic potential of ERG 1 expression in prostate cancer. Poster presentation, Society for Urological Oncology 6th Annual Meeting, Bethesda, Md, 2005.
 27. Gao CL, Shaheduzzaman S, Petrovics G, Furusato B, Nau M, Ravindranath L, Chen Y, Srikantan V, McLeod DG, Vahey M, Sesterhenn IA, Srivastava S. Gene expression signatures of prostate cancer with poor prognosis. Poster presentation, Society for Urological Oncology 6th Annual Meeting, Bethesda, Md, 2005.
 28. Rosner IL, Ravindranath L, Furusato B, Chen Y, Cullen J, Sesterhenn IA, McLeod DG, Srivastava S, Petrovics G. Quantitative gene expression analysis of androgen receptor in benign and neoplastic prostate epithelial cells may predict PSA recurrence. Poster presentation, Society for Urological Oncology 6th Annual Meeting, Bethesda, Md, 2005.
 29. Furusato B, Petrovics G, Srikantan V, Shaheduzzaman S, Ravindranath L, Nau M, Vahey M, McLeod DG, Srivastava S, Sesterhenn IA. Gene expression signatures in benign and malignant epithelial cells from formalin-fixed paraffin-embedded (FPPE) tissues of prostate cancer patients. Poster presentation, Society for Urological Oncology 6th Annual Meeting, Bethesda, Md, 2005.

Syllabuses

1. Annual Genitourinary Pathology Course
2. Annual Anatomic Pathology Course Conference
3. Tokyo Urologic Pathology Course

Projects

1. Studies of various renal tumors in adults (Wilms' tumor, certain epithelial tumors, multilocular cystic nephroma), and a group of renal hamartomas (angiomyolipoma, capsuloma, adenoleiomyofibroma).
2. Review of testicular tumors in infants and children.
3. Studies of carcinoma in situ of the bladder.
4. Reclassification of the first 2,000 bladder tumors in the Bladder Tumor Registry.

Collaborators

Military

1. Center for Prostate Disease Research; WRAMC Urology Services; Naval Medical Center, San Diego; Malcolm Grow Medical Center; Madigan Army Medical Center; Brook Army Medical Center; UHHS:
 - Characterization of prostate cancer associated tumor suppressor gene locus on chromosome 6q16.1.
 - Characterization of PCGEM1, a novel prostate-specific gene overexpressed in prostate cancer.
 - A novel prostate-specific G-protein-coupled receptor gene, PSGR, is overexpressed in prostate cancer.
 - Preclinical evaluation of prostate-specific G-protein coupled receptor, PSGR, for developing prostate vaccine.
 - SAGE-bioinformatics to define prostate specific and prostate cancer associated quantitative gene expression profiles.
 - Coordinated gene expression patterns define endoplasmic reticulum (ER) stress response pathway as a novel component of androgen signaling in prostate cancer cells.
2. CPDR Prostate Tissue LCM-based RNA/DNA Bank: The Prostate Cancer Cell Center in CPDR.
3. WRAMC Department of Surgery, Urology: Prostate cancer vaccine program.
4. Tripler Army Medical Center and Queens Hospital Hawaii: Cancer localization in the prostate with F-18 fluorocholine PET.

Civilian

1. Division of Epidemiology and Genetics, NCI:

- International study on familial testicular tumors.
- Comparison of Chinese and American prostatic carcinomas.
- 2. American Veterinary Association: Classification of canine bladder tumors.
- 3. WRAMC, Urology Department, VA and civilian institutions: A phase 2, open label, randomized study to evaluate the efficacy of CP-675,206 in combination with neoadjuvant androgen ablation and androgen ablation alone in patients with high risk prostate cancer.
- 4. Tripler Army Medical Center and Queens Hospital Hawaii: Cancer localization in the prostate with F-18 fluorocholine PET.

Military/Civilian

1. A phase 2, open-label, randomized study to evaluate the efficacy of CP-675-206 in combination with neoadjuvant androgen ablation and androgen ablation alone in patients with high risk prostate cancer. Pfizer Global Research and Development.
2. The utility of gene-specific DNA hypermethylation within diagnostic sextant biopsies as an early detection molecular marker of prostate cancer. Cancer Prevention Studies Branch, Center for Cancer Research, NCI and WRAMC.

Department of Hepatic and Gastrointestinal Pathology

1. Evaluation of liver histology in a double-blind placebo controlled, randomized dose ranging study of recombinant human interleukin-10 (Tenovil) for treatment of hepatic fibrosis in patients with chronic hepatitis C who failed to respond to previous combination therapy (interferon alfa-2b plus ribavirin). Morphometric analysis of distribution of fibrosis.
2. Evaluation of liver histology in a phase II, double-blind, randomized, placebo controlled, multicenter study of the safety and anti-fibrotic efficacy of interferon-gamma 1b in patients with severe liver fibrosis or compensated fibrosis due to hepatitis C.

PROFESSIONAL ACTIVITIES

Official Trips

1. February 2005, USCAP, San Antonio, Tex, IA Sesterhenn.
2. May 2005, AUA Annual Meeting, San Antonio, Tex, IA Sesterhenn.
3. July 2005, Tokyo Genitourinary Working Group, Tokyo, Japan, IA Sesterhenn (Kyorin University).
4. August 2005, 1st Collaborative Scientific Meeting, The Netherlands, IA Sesterhenn.
5. October 2005, ASCP-AIPNA Meeting, Seattle, Wash, IA Sesterhenn.

Manuscripts Reviewed

CJ Davis and IA Sesterhenn reviewed 9 manuscripts for the following professional journals:

1. *Virchows Archiv*
2. *Journal of Andrology*
3. *Urology*
4. *European Urology Review*
5. *The Prostate*

DIVISION OF NEPHROPATHOLOGY



Sharda G. Sabnis, MD
Chief
Date of Appointment – 1 January 1994

STAFF

Medical

Sharda G. Sabnis, MD, Chief
Thomas R. Himes, CAPT, MC, USN, Staff Pathologist (part-time) (January-September 2005)

Scientific

Armidia Orozco, MD, Callender-Binford Fellow (January-November 2005)
Anandita Datta, MD, Callender-Binford Fellow (July-December 2005)

Administrative

Paulette Crampton, Secretary

IMPACT

Division staff served as the primary pathologist in most of the cases, performing light, immunofluorescence, and electron microscopy to render quality diagnosis. This includes time-consuming research for clinical data and discussion with clinicians or contributing pathologists to arrive at a final diagnosis. Among 399 human kidney biopsies studied, 312 (78%) were from federal institutions and 87 (22%) were from civilian contributors. Average case turnaround time was 7 days.

CONSULTATION

<i>Cases</i>	<i>Completed</i>
Military	211
Army (140)	
Navy (56)	
Air Force (15)	
Federal	101
VA (89)	
USPHS (12)	
Civilian	87
Interdepartmental	53
Total	452

Clinical Appointments

1. Consultant, Department of Pathology, NNMC, SG Sabnis.
2. Adjunct Staff, Department of Pathology, WRAMC, SG Sabnis.
3. Dr. Sabnis and Capt. Himes review all kidney biopsies performed at WRAMC, NNMC, and many other military, VA and federal institutions (78% of cases received).

EDUCATION

Courses

- Dr Sabnis participated as faculty in 2 AFIP courses in 2005.
- The division held monthly renal biopsy conferences for staff and fellows of the divisions of nephrology at WRAMC and NNMC.
- Dr. Sabnis participated in biopsy conferences at the Federal Medical Monthly Nephrology Seminar, USUHS.

Trainees

Since 1998, division staff have trained 8 Callender-Binford Nephropathology Fellows. In 2005, 10 pathology and nephrology trainees rotated through the division, 5 from federal institutions and 5 from civilian institutions. Microscopic pathology conferences were held daily for 2 hours. Dr. Sabnis and Capt. Himes train pathology fellows for electron microscopy for the joint residency program of WRAMC and NNMC. The division also trains the post-graduate nephrology fellows at WRAMC and NNMC.

Faculty Appointments

SG Sabnis:

1. Clinical Associate Professor of Pathology, USUHS.
2. Clinical Associate Professor, Georgetown University Department of Pathology.
3. Adjunct Associate Professor, George Washington University Department of Pathology.
4. Clinical Associate Professor, Howard University Department of Pathology.
5. Consultant, NNMC Department of Pathology.
6. Adjunct Staff, WRAMC Department of Pathology.
7. Honorary Professor, Muljibhai Urological Institute, Nadiad, India.

Presentations

1. January 2005: Nadiad, India, Muljibhai Urological Institute, "Lectures and case presentations and discussions," SG Sabnis.
2. March 2005: Washington, DC, WRAMC, "Pathology of lupus nephritis," SG Sabnis.
3. April 2005: Silver Spring, Md, Nephropathology Review Course, four lectures, SG Sabnis.
4. April 2005: Washington, DC, WRAMC, and NNMC, Bethesda, Md, First VTC Biopsy Conference, "Case discussion," SG Sabnis.
5. April 2005: Bethesda, Md, Annual Anatomic Pathology Review Course, "Evaluation of renal biopsy," TR Himes.
6. April 2005: Bethesda, Md, Annual Anatomic Pathology Review Course, "Case discussions," SG Sabnis.
7. December 2005: Nadiad, India, Muljibhai Urological Institute, "Pathology of vasculitis," "Case presentations and discussions," SG Sabnis.

Poster Presentation

October 2005: San Diego, Calif, American College of Physicians, Navy Chapter Meeting, "An unusual case of antiphospholipid syndrome with Libman-Sacks endocarditis and worsening renal insufficiency," K Bonaparte, N Delaney, SG Sabnis, C Smiley.

RESEARCH

Journal Article

Srinivasan R, Balow JE, Sabnis S, Lundqvist A, Igarashi T, Takahashi Y, Austin H, Tisdale J, Barrett J, Geller N, Childs R. Nephrotic syndrome: an under-recognised immune-mediated complication of non-myeloablative allogeneic hematopoietic cell transplantation. *Br J Haematol.* 2005;131:74-9.

PROFESSIONAL ACTIVITIES

Official Trips

1. February 2005, US/CAP Annual Meeting, Washington, DC, SG Sabnis (ARP).
2. March 2005, International CME on Pathology of Medical and Surgical Diseases of the Kidney, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India, SG Sabnis.
3. October 2005, American Society of Clinical Pathologists, Seattle, Washington, SG Sabnis (ARP).
4. December 2005, Muljibhai Urological Institute, Nadiad, India, SG Sabnis.

Editorial Boards

SG Sabnis:

1. Transplantation India
2. Archives of Medical Research (Mexico City)



Michael D. Stamatakos, Lt Col, USAF, MC
Chair
Date of Appointment 2 – July 2005

DEPARTMENT OF GYNECOLOGIC AND BREAST PATHOLOGY

STAFF

Medical

- (A) Michael D. Stamatakos, Lt Col, USAF, MC, Staff Pathologist, Chair
- Tuyethoa N. Vinh, MD, Staff Pathologist, Assistant Chair
- Thomas H. Dougherty, Col, USAF, MC, Staff Pathologist
- Adonica Walker, Lt Col, USAF, MC, Staff Pathologist (Pediatric Pathology)
- (D) Ross Barner, LTC, MC, USA, Staff Pathologist, Interim Chair
- (D) Darren T. Wheeler, MAJ, MC, USAR, Staff Pathologist
- Rubina Mattu, MD, Staff Pathologist

Scientific

- Gary L. Bratthauer, MS, MT(ASCP)
- Yan-Gao Man, MD

Fellow

- (D) Chengquan Zhao, MD

Administrative

- Angeline Edmonds, Secretary
- Consuelo Lewis, Administrative Assistant

IMPACT

With the increasing role of women in the military, our consultation service has assumed a vital role in military preparedness. The department launched several new initiatives with the scientific laboratories, including immunoperoxidase testing for estrogen receptors, progesterone receptors, and HER2/Neu overexpression for breast tumors for military cases, and P16 to improve diagnostic accuracy of premalignant lesions of the uterine cervix. Despite this busy consultation service, department members were involved in 20 educational presentations, 12 research papers (including one award-winning paper), and 21 research abstracts.

CONSULTATION

The department is one of the busiest at the Institute within the vital areas of women's health. In addition, gynecologic and breast tumors are some of the largest cases, with an average of 12 to 15 slides per case, a few cases containing over 100 slides. In 2005, we experienced a net reduction of one staff member with the departure of Drs. Ross Barner and Darren Wheeler. Nonetheless, despite staffing shortages, the department continues to maintain one of the fastest turnaround times in the Institute.

Cases	Completed
Military	2,099
Army (1097)	
Navy (553)	
Air Force (449)	
Federal	323
VA (323)	
Civilian	1,602
Interdepartmental	764

EDUCATION

Trainees: The department provided month-long observer training for 6 civilian senior pathology residents, 6 military senior pathology residents, and one breast surgery fellow.

Presentations

1. March 2005: San Antonio, Tex, US/CAP, "Potential roles of T-lymphocytes and natural killer cells in human myoepithelial cell layer disruptions and tumor invasion," YG Man, T Vinh, C Zhao, A Walker, R Barner.
2. March 2005: San Antonio, Tex, US/CAP, "Reduction of tumor suppressors and elevation of cytotoxic cells in myoepithelial cell layers of inflammation breast carcinoma: implication for tumor aggressiveness," LP Wang, C Mannion, YG Man.
3. March 2005: San Antonio, Tex, US/CAP, "A subset of normal and hyperplastic-appearing human breast cell clusters exhibited similar immunohistochemical and cytological alterations to cancer cells," C Zhao, R Barner, T Vinh, A Walker, YG Man.
4. March 2005: San Antonio, Tex, US/CAP, "Potential roles of cytotoxic T-lymphocytes and nature killer cells in prostate basal cell layer disruptions and tumor invasion," C Zhao, C Mannion, YG Man.
5. March 2005: San Antonio, Tex, US/CAP, "Elevated expression of BP1 in both invasive and metastatic inflammatory breast cancer," YG Man, A Schwartz, P Levine, PE Berg.
6. April 2005: San Diego, Calif, American Society of Investigative Pathology, "Localized basal cell degeneration and resultant immunoreactions are a triggering factor for prostate tumor invasion," YG Man, C Mannion, T Shen.
7. April 2005: Bethesda, Md, AFIP 15th Annual Anatomic Pathology Course, "Selected differential diagnostic problems in breast pathology," R Barner.
8. April 2005: Bethesda, Md, AFIP 15th Annual Anatomic Pathology Course, "Pathology of the uterine cervix," TH Dougherty.
9. April 2005: Bethesda, Md, AFIP 15th Annual Anatomic Pathology Course, "Pathology of the ovary," MD Stamatakis.
10. June 2005: Philadelphia, Penn, DoD Breast Cancer Research Program Meeting, "Impacts of focal myoepithelial cell layer disruptions on biologic presentations of overlying epithelial cells: implications for breast tumor progression and invasion," YG Man.
11. June 2005: Philadelphia, Penn, DoD Breast Cancer Research Program Meeting, "Stromal and vascular invasion of normal and hyperplastic appearing human breast ductal cells," YG Man.
12. June 2005: Philadelphia, Penn, DoD Breast Cancer Research Program Meeting, "Cell clusters overlying focally disrupted myoepithelial cell layers change status of estrogen receptor expression during tumor invasion," YG Man.
13. June 2005: Philadelphia, Penn, DoD Breast Cancer Research Program Meeting, "Differential expression of tumor invasion related proteins in cells overlying focally disrupted myoepithelial cell layers and adjacent cells within the same duct," YG Man, PE Berg, QXA Sang.
14. June 2005: Philadelphia, Penn, DoD Breast Cancer Research Program Meeting, "Expression of BP1, a homobox gene, correlates with progression and invasion of male and uncommon forms of breast tumors," YG Man, PE Berg.
15. June 2005: Philadelphia, Penn, DoD Breast Cancer Research Program Meeting, "A subset of cell clusters overlying focal myoepithelial cell layer disruptions exhibits features of mutated stem cells," YG Man.
16. June 2005: Philadelphia, Penn, DoD Breast Cancer Research Program Meeting, "A subset of female breast tissues contains isolated solid cell masses with unusual morphologic and

- immunohistochemical features: seeds for drug resistance and recurrence?" YG Man.
17. June 2005: Philadelphia, Penn, DoD Breast Cancer Research Program Meeting, "CD8 and mast cell tryptase positive cells are preferentially associated with focal myoepithelial cell layer disruptions: implications for breast tumor invasion," YG Man.
 18. June 2005: Philadelphia, Penn, DoD Breast Cancer Research Program Meeting, "Focal degenerations in surrounding structures and infiltration of immunoreactive cells are a potential trigger for invasion of breast and other epithelium-derived tumors," YG Man.
 19. June 2005: Philadelphia, Penn, DoD Breast Cancer Research Program Meeting, "Genetically different primary bilateral breast tumors show similar signs of potential progression and invasion," YG Man.
 20. June 2005: Singapore, 3rd Annual Drug Discovery and Development Asian-Pacific Congress, YG Man.
 21. September 2005: Philadelphia, Penn, Drexel University Medical School, YG Man.

RESEARCH

Journal Articles

1. Wheeler DT, Kurman RJ. The relationship of glands to thick-wall blood vessels as a marker of invasion in endocervical adenocarcinoma. *Int J Gynecol Pathol*. 2005;24:125-30.
2. Bratthauer GL, Saenger JS, Strauss BL. Antibodies targeting p63 react specifically in the cytoplasm of breast epithelial cells exhibiting secretory differentiation. *Histopathology*. 2005;47:611-6.
3. Bratthauer GL, Strauss BL, Tavassoli FA. STAT 5a expression in various lesions of the breast. *Virchows Arch*. 2005 Aug 19; [Epub ahead of print].
4. Vang R, Vinh TN, Burks RT, Barner R, Kurman RG, Ronnett BM. Pseudoinfiltrative tubal metaplasia of the endocervix: a potential form of in utero diethylstilbestrol exposure-related adenosis simulating minimal deviation adenocarcinoma. *Int J Gynecol Pathol*. 2005;24:391-8.
5. Motamedi K, Murphey MD, Fetsch JB, Furlong MS, Vinh TN, Laskin WB, Sweet DE. Villonodular synovitis (PVNS) of the spine. *Skeletal Radiol*. 2005;34:185-95.
6. Yousefi M, Mattu R, Gao C, Man YG. Mammary ducts with and without focal myoepithelial cell layer disruptions show a different frequency of white blood cell infiltration and growth pattern: implications for tumor progression and invasion. *Appl Immunohistochem Mol Morphol*. 2005;13:30-7.
7. Man YG, Shen T, Zhao YG, Sang QX. Focal prostate basal cell layer disruptions and leukocyte infiltration are correlated events: a potential mechanism for basal cell layer disruptions and tumor invasion. *Cancer Detect Prev*. 2005;29:161-9.
8. Man YG, Zhang Y, Shen T, Vinh TN, Zeng X, Tauler J, Mulshine JL, Strauss BL. cDNA expression profiling identifies elevated expressions of tumor progression and invasion related genes in cell clusters of in situ breast tumors. *Breast Cancer Res Treat*. 2005;89:199-208.
9. Man YG, Fu SW, Pinzone JJ, Schwartz AM, Simmens SJ, Berg PE. Expression of BP1, a homobox gene, correlates with progression and invasion of mammary ductal carcinoma. *Breast Cancer Res Treat*. 2005;90:241-7.
10. Halbwed I, Ullmann R, Kremser ML, Man YG, Isadi-Moud N, Lax S, Denk H, Popper HH, Tavassoli FA, Moinfar F. Chromosomal alterations in low-grade endometrial stromal sarcoma and undifferentiated endometrial sarcoma as detected by comparative genomic hybridization. *Gynecol Oncol*. 2005;97:582-7.
11. Moinfar F, Gogg-Kamerer M, Sommersacher A, Regitnig P, Man YG, Zatloukal K, Denk H, Tavassoli FA. Endometrial stromal sarcomas frequently express epidermal growth factor receptor (EGFR, HER-1): potential basis for a new therapeutic approach. *Am J Surg Pathol*. 2005;29:485-9.
12. Man YG, Shen T, Weisz J, Berg PE, Schwartz AM, Mulshine JL, Sang QXA, Nieburgs HE. A subset of in situ breast tumor cell clusters lacks expression of proliferation and progression related markers but shows signs of stromal and vascular invasion. *Cancer Detect Prev*. 2005;29:321-33.

Abstracts

1. Barner R, Bratthauer GL, Tavassoli FA. Pure spindle cell metaplastic tumors of the breast: an immunohistochemical and morphologic study with follow-up. *Lab Invest*. 2005;85:104A.

2. Man YG, Vinh T, Zhao C, Walker A, Barner R. Potential roles of T-lymphocytes and natural killer cells in human myoepithelial cell layer disruptions and tumor invasion. *Mod Pathol.* 2005;18:42A.
3. Wang LP, Mannion C, Man YG. Reduction of tumor suppressors and elevation of cytotoxic cells in myoepithelial cell layers of inflammation breast carcinoma: implication for tumor aggressiveness. *Mod Pathol.* 2005;18:54A.
4. Zhao C, Barner R, Vinh T, Walker A, Man YG. A subset of normal and hyperplastic appearing human breast cell clusters exhibited similar immunohistochemical and cytological alterations to cancer cells. *Mod Pathol.* 2005;18:57A.
5. Zhao C, Mannion C, Man YG. Potential roles of cytotoxic T-lymphocytes and natural killer cells in prostate basal cell layer disruptions and tumor invasion. *Mod Pathol.* 2005;18:175A.
6. Berg PE, Man YG. Increasing BP1 expression correlates with progression and invasion of prostate cancer. *Proc Am Assoc Cancer Res.* 2005;46:746, 3171.
7. Sang QXA, Zhao YG, Man YG. Mechanism of human prostate cancer invasion: basement membrane degradation and basal cell layer disruption. *Proc Am Assoc Cancer Res.* 2005;46:1106, 4689.
8. Man YG. Impacts of focal myoepithelial cell layer disruptions on biologic presentations of overlying epithelial cells: implications for breast tumor progression and invasion. *Proceedings of DoD Breast Cancer Research Program Meeting.* 2005;P38-15:264.
9. Man YG. Stromal and vascular invasion of normal and hyperplastic appearing human breast ductal cells. *Proceedings of DoD Breast Cancer Research Program Meeting.* 2005;P10-4:74-75.
10. Man YG. Cell clusters overlying focally disrupted myoepithelial cell layers change status of estrogen receptor expression during tumor invasion. *Proceedings of DoD Breast Cancer Research Program Meeting.* 2005;P60-12:423.
11. Man YG, Berg PE, Sang QXA. Differential expression of tumor invasion related proteins in cells overlying focally disrupted myoepithelial cell layers and adjacent cells within the same duct. *Proceedings of DoD Breast Cancer Research Program Meeting.* 2005;P10-5:75.
12. Man YG, Berg PE. Expression of BP1, a homobox gene, correlates with progression and invasion of male and uncommon forms of breast tumors. *Proceedings of DoD Breast Cancer Research Program Meeting.* 2005;P10-6:75.
13. Man YG. A subset of cell clusters overlying focal myoepithelial cell layer disruptions exhibits features of mutated stem cells. *Proceedings of DoD Breast Cancer Research Program Meeting.* 2005;P38-12:263.
14. Man YG. A subset of female breast tissues contains isolated solid cell masses with unusual morphologic and immunohistochemical features: seeds for drug resistance and recurrence? *Proceedings of DoD Breast Cancer Research Program Meeting.* 2005;P38-14:263-264.
15. Man YG. CD8 and mast cell tryptase positive cells are preferentially associated with focal myoepithelial cell layer disruptions: implications for breast tumor invasion. *Proceedings of DoD Breast Cancer Research Program Meeting.* 2005;P38-13:263.
16. Man YG. Focal degenerations in surrounding structures and infiltration of immunoreactive cells are a potential trigger for invasion of breast and other epithelium-derived tumors. *Proceedings of DoD Breast Cancer Research Program Meeting.* 2005;P10-7:75-76.
17. Man YG. Genetically different primary bilateral breast tumors show similar signs of potential progression and invasion. *Proceedings of DoD Breast Cancer Research Program Meeting.* 2005;P10-8:76.
18. Man YG. CD8 and mast cell tryptase positive cells are differentially distributed in benign and malignant breast tissues with and without myoepithelial cell layers. *Proceedings of DoD Breast Cancer Research Program Meeting.* 2005;P10-9:76.
19. Zhao CQ, Man YG. A subset of morphologically distinct prostate basal cells lacks expression of corresponding phenotypic markers. *Am J Clin Pathol.* 2005;124:658-9.
20. Tejani A, Yousefi M, Zhao CQ, Man YG. Elevated expression of e-cadherin in cell clusters overlying focally disrupted breast myoepithelial cell layers. *Am J Clin Pathol.* 2005;124:632-3.
21. Wang HL, Man YG. Potential roles of focal basement membrane disruptions and lymphocyte infiltration in colorectal cancer invasion. *Am J Clin Pathol.* 2005;124:647.

Projects

1. Lobular intraepithelial neoplasia (LIN) of the breast: an examination of the relationship to ductal disease and infiltrating carcinomas.

2. STAT 5a in in-situ ductal and lobular lesions and in invasive breast carcinomas.
3. Peutz-Jegher's syndrome.
4. Comparison of novel myoepithelial cell immunohistochemical markers with more established immunomarkers in the human breast.
5. New approaches for the early detection of breast cancer.
6. Analysis of ovarian Sertoli cell tumors.

Collaborators

1. Dr. Ira Pastan
2. Dr. Qung-Xiang Amy Sang
3. Dr. Patricia Berg
4. Dr. Arnold Schwartz
5. Dr. Judith Weitz
6. Dr. Russel Vang
7. Dr. Tammy Naab

PROFESSIONAL ACTIVITIES

April 2005, Postgraduate Course on Gynecologic Cancer, Medical College of Georgia, TN Vinh, R Mattu.

Manuscripts Reviewed

1. *Cancer Therapy*, YG Man
2. *Cancer Detection and Prevention*, YG Man

Awards

Young Investigator Award, International Society of Gynecologic Pathologists, for research paper: Wheeler DT, Kurman RJ. The relationship of glands to thick-wall blood vessels as a marker of invasion in endocervical adenocarcinoma. *Int J Gynecol Pathol.* 2005;24:125-30.



Elisabeth J. Rushing, COL, MC, USA
Chair
Date of Appointment — 7 March 2005

DEPARTMENT OF NEUROPATHOLOGY AND OPHTHALMIC PATHOLOGY

ORGANIZATION

The department is organized into 2 divisions:

1. Division of Neuropathology, Elisabeth J. Rushing, COL, MC, USA
2. Division of Ophthalmic Pathology, Ahmed Hidayat, MD

STAFF – NEUROPATHOLOGY

Medical

- Elisabeth J. Rushing, COL, MC, USA, Chair
- Glenn D. Sandberg, COL, MC, USA, Staff Neuropathologist
- Charles S. Specht, MD, Staff Neuropathologist
- (A) Darius Amjadi, MAJ, MC, USA, Staff Neuropathologist
- Iren Horkayne-Szakaly, MD, Second-Year Resident, ARP
- (A) Matthew Katus, CPT, USA, First-Year Resident

Administrative

- Erlinda T. Castro, Secretary, ARP
- Erma Campbell, Secretary

IMPACT

- Our staff's diagnostic expertise is constantly in demand for a variety of lectures at military and civilian hospitals, including WRAMC, Madigan Army Medical Center, National Naval Medical Center, USUHS, University of Maryland Medical System, Georgetown University Medical Center, Howard University Medical School, and Washington Hospital Center.
- We have a close relationship with the Department of Pathology and the Neurosurgery Service, WRAMC, for the interpretation of intraoperative consultations and tumor board cases.
- This is the only military program fully accredited by the Accreditation Council for Graduate Medical Education in the military services for training of medical officers, including neurosurgeons and neurologists, in the field of neuropathology. Our trainees have consistently received high marks in exams leading to board certification, and many have achieved international recognition for their research endeavors in neuropathology. Military and civilian physicians in training in neurology, neurosurgery, and pathology from medical centers nationwide and abroad regularly attend the semi-annual, intensive, 3-month didactic course designed in support of preparation for specialty board certification.
- Members of the staff participated in the ongoing NASA investigation of the space shuttle Columbia disaster.

CONSULTATION**DIVISION OF NEUROPATHOLOGY**

Cases	Completed
Military	126
Army (65)	
Navy (57)	
Air Force (4)	
Federal	84
VA (84)	
AFIP	1
Civilian	342
Interdepartmental	72
Total	625

DIVISION OF NEUROMUSCULAR PATHOLOGY

Cases	Completed
Military	68
Army (22)	
Navy (34)	
Air Force (12)	
Federal	137
VA (128)	
OFA (18)	
Civilian	240
Interdepartmental	4
Total	444

The Divisions of Neuropathology and Neuromuscular Pathology made no change in the contributor diagnosis in 219 cases, a minor change in diagnosis in 76 cases, and a major change in diagnosis in 4 cases. We received 618 cases with no contributor diagnosis.

Cases submitted to Neuropathology and Neuromuscular Pathology include surgical specimens, whole brains obtained at autopsy, skeletal muscle biopsy specimens from cases of medical disorders of skeletal muscle, peripheral nerve biopsy specimens, and skin biopsy specimens from suspected cases of storage disease. All cases accompanied by radiologic studies are reviewed in conference with the Neuroradiology staff of the Department of Radiologic Pathology. Whole brains are serially sectioned and studied according to standardized protocols for specific disorders. Skeletal muscle biopsy specimens are routinely examined using histochemical stains, enzyme histochemical methods, and in selected cases, with immunohistochemistry and electron microscopy. Peripheral nerve and skin biopsy materials are evaluated with light and electron microscopy. The department also provides neuropathology review on selected cases from the OAFME. Consultation is also provided for VA claim cases.

EDUCATION***Clinicopathologic Conferences***

Department staff participated in the following clinicopathologic conferences as part of our ongoing educational mission:

1. Neuropathology and Ophthalmic Pathology, AFIP: daily sign-out conference.
2. Department of Pathology, WRAMC: weekly intra-operative diagnosis of neurosurgical specimens.
3. Department of Neuropathology, AFIP: weekly neuropathology/neuroradiology conference.
4. Department of Neuropathology, AFIP: bimonthly review of muscle biopsies with the staff of the Connective Tissue Disease Section, NIH.
5. WRAMC: monthly neurosurgery tumor board.
6. Department of Neuropathology, AFIP: bi-monthly journal club.

Courses

Members of the staff participated as faculty members in 4 AFIP-sponsored general pathology courses and 1 non-AFIP course.

Trainees

The department is fully approved for residency training in neuropathology by the Residency Review Committee for Pathology of the Accreditation Council for Graduate Medical Education. In 2005 the department had 2 full-time residents for a total of 500 training days. The department had 10 active duty military and 8 nonfederal rotators for a total of 728 training days.

Faculty Appointments

1. Consultant in Neuropathology, WRAMC, Washington, DC, EJ Rushing.
2. Adjunct Associate Professor, Georgetown University Department of Pathology, Washington, DC, EJ Rushing.
3. Consultant in Neuropathology, WRAMC, Washington, DC, GD Sandberg.

Presentations

1. January 2005: Washington, DC, Washington Hospital Center, Department of Neurosurgery, "Surgical neuropathology, selected cases," EJ Rushing.
2. January 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Surgical neuropathology unknowns," EJ Rushing.
3. February 2005: Washington, DC, Howard University School of Medicine, "Brain tumor, primary and metastatic," EJ Rushing.
4. February 2005: Bethesda, Md, AFIP 43rd Annual Neuropathology Review, "Introduction to neuropathology," GD Sandberg.
5. February 2005: Bethesda, Md, AFIP 43rd Annual Neuropathology Review, "Embryonal, neuronal and mixed neuronal-glial neoplasms of the central nervous system," EJ Rushing.
6. February 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Surgical neuropathology unknowns," EJ Rushing.
7. February 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Astrocytomas," EJ Rushing.
8. February 2005: Washington, DC, Howard University Medical School, "Brain tumors," EJ Rushing.
9. March 2005: Washington, DC, Georgetown University Medical School, "Alzheimer and other neurodegenerative diseases"; "Demyelinating diseases," EJ Rushing.
10. March 2005: Washington, DC, Washington Hospital Center, Department of Neurosurgery, "Selected topics in surgical neuropathology II," EJ Rushing.
11. March 2005: Washington, DC, WRAMC, "Brain cutting conference," I Horkayne-Szakaly, EJ Rushing.
12. March 2005: Tacoma, Wash, Madigan Army Medical Center, Department of Pathology, "Techniques of gross brain examination," GD Sandberg.
13. March 2005: Tacoma, Wash, Madigan Army Medical Center, Department of Pathology, "Microscopic slide unknowns," GD Sandberg.
14. March 2005: Tacoma, Wash, Madigan Army Medical Center, Department of Pathology, "Neurodegenerative diseases," GD Sandberg.
15. March 2005: Washington, DC, AFIP Weekly Professional Staff Conference, "Muscle pathology in Gulf War veterans," CS Specht.
16. April 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Pituitary pathology," EJ Rushing.
17. April 2005: Rockville, Md, AFIP 14th Annual Anatomic Pathology Course, "Glial neoplasms," EJ Rushing.
18. April 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Pathology residents: neuropathology quiz I," EJ Rushing.
19. May 2005: Washington, DC, Washington Hospital Center, Department of Neurosurgery, "Selected topics in surgical neuropathology III," EJ Rushing.
20. May 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Pathology residents: neuropathology quiz II," EJ Rushing.
21. June 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Unknown slide conference," EJ Rushing.

22. June 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Brain cutting conference," EJ Rushing.
23. June 2005: Washington, DC, WRAMC, Department of Pathology, "Nerve sheath tumors," CS Specht.
24. June 2005: Washington, DC, WRAMC, Department of Pathology, "Pituitary tumors," CS Specht.
25. June 2005: Tacoma, Wash, Madigan Army Medical Center, Department of Pathology, "Toxic-metabolic disorders," GD Sandberg.
26. July 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Brain cutting conference," EJ Rushing.
27. July 2005: Bethesda, Md, National Naval Medical Center, Department of Pathology, "Brain cutting conference," EJ Rushing.
28. August 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Unknown slide conference," EJ Rushing.
29. September 2005: Washington, DC, WRAMC, "Brain cutting conference," I Horkayne-Szakaly, EJ Rushing.
30. October 2005: Washington, DC, Washington Hospital Center, Department of Neurosurgery, "Selected topics in surgical neuropathology IV," EJ Rushing.
31. November 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Unknown slide conference," EJ Rushing.
32. November 2005: Tacoma, Wash, Madigan Army Medical Center, Department of Pathology, "Demyelinating diseases," GD Sandberg.
33. December 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Pathology residents: quiz," EJ Rushing.
34. December 2005: Tacoma, Wash, Madigan Army Medical Center, Department of Pathology, "Introduction to neuropathology," GD Sandberg.
35. December 2005: Tacoma, Wash, Madigan Army Medical Center, Department of Pathology, "Microscopic slide unknowns," GD Sandberg.
36. December 2005: Washington, DC, AFIP, "Brain cutting conference," M Katus, EJ Rushing.

RESEARCH

Journal Articles

1. Zimmerman MK, Rushing EJ, Mena H, Horkayne-Szakaly I. Pathologic quiz case: a 63-year-old with intractable back pain. *Arch Pathol Lab Med.* 2005;129:e156-6.
2. Shuangshoti S, Rushing EJ, Mena H, Olsen C, Sandberg GD. Supratentorial extraventricular ependymal neoplasms: a clinicopathological study of 32 cases. *Cancer.* 2005;103:2598-605.
3. Bouffard JP, Rushing EJ. Tethered cord syndrome. *Semin Spine Surg.* 2005;17:19-22.
4. Santi M, Quezado M, Ronchetti R, Rushing EJ. Analysis of chromosome 7 in adult and pediatric ependymomas using chromogenic in situ hybridization. *J Neurooncol.* 2005;72:25-8.
5. Quezado M, Ronchetti R, Rapkiewicz A, Santi M, Rushing EJ. Chromogenic in situ hybridization accurately identifies EGFR amplification in small cell glioblastoma multiforme, a common subtype of primary GBM. *Clin Neuropathol.* 2005;24:163-9.
6. Koeller KK, Rushing EJ. From the archives of the AFIP: oligodendroglioma and its variants: radiologic-pathologic correlation. *RadioGraphics.* 2005;25:1669-88.
7. Rushing EJ, Olsen C, Mena H, Rueda M-E, Lee Y-S, Keating RF, Packer RJ, Santi M. Central nervous system meningiomas in the first two decades of life: clinicopathologic analysis of 87 cases. *J Neurosurg.* 2005;103:489-95.
8. Horkay F, Horkayne-Szakaly I, Basser PJ. Measurement of the osmotic properties of thin polymer films and biological tissue samples. *Biomacromolecules.* 2005;6:988-93.

Abstracts

1. Rushing EJ, Quezado M, Evangelista R, Santi M. Evaluation of RB gene and cyclin-dependent kinase inhibitors p21 and p27 in pleomorphic xanthoastrocytoma. *J Neuropathol Exp Neurol.* 2005;64:439.
2. Horkayne-Szakaly I, Rushing E, Fowler D, Riudavets M, Troncoso J, Rubio A. Primary intracranial hemorrhage and drug abuse: an autopsy study. *J Neuropathol Exp Neurol.* 2005;64:453.
3. Quezado M, Tapia EL, Rushing E, Camphausen K, Anderson SJ. Cytonection, a "do not

- attack molecule," is overexpressed in glioblastoma multiforme. *J Neuropathol Exp Neurol.* 2005;64:458.
4. Specht CS, Lewin-Smith MR, Murakata LA, Rushing EJ, Sandberg GD, Kalasinsky V, Moroz AL, Mullick FG. Central nervous system neoplasia in 1990-1991 Gulf War veterans. *J Neuropathol Exp Neurol.* 2005;64:459.
 5. Sandberg GD, Rushing EJ, Horkayne-Szakaly I, Koeller K, Ozdemirli M, Specht CS. Cerebral Erdheim-Chester disease: the clinicopathologic spectrum of 5 cases. *J Neuropathol Exp Neurol.* 2005;64:469.
 6. Wedderburn LR, Li C, Varsani H, Amato A, Banwell B, Corse A, Emslie-Smith A, Harding B, Hoogendijk J, Lundberg I, Marie S, Minetti C, Nennesmo I, Rushing E, Sewry C, Allen E, Pilkington C, Holton J. An international consensus working group to generate a scoring system for histological abnormality in juvenile dermatomyositis muscle biopsies. 12th Annual European Pediatric Rheumatology Congress, Versailles, France, September 2005.
 7. Horkay F, Horkayne-Szakaly I, Basser PJ. Measurement of osmotic properties of biological tissue samples. 229th ACS National Meeting, San Diego, Calif, March 13-17, 2005;229:372. Biotechnology Division, Part 1.
 8. Horkay F, Horkayne-Szakaly I, Basser PJ. Compressive properties of tissue-engineered cartilage. 230th ACS National Meeting, Washington, DC, Aug 28-Sept 2, 2005; Biological Chemistry.

Other Publications

1. Syllabus for 43rd Annual Neuropathology Review.
2. Handouts for lectures in one AFIP-sponsored course and one non-AFIP-sponsored course.

Projects

The divisions of Neuropathology and Neuromuscular Pathology have 8 officially approved research protocols:

1. Protein expression in brain tumors: EJ Rushing.
2. Analysis of p13K/PTEN signaling pathway in ganglion cell lesions and subependymal giant cell astrocytoma: EJ Rushing.
3. Identifying and investigating chordoma families: a collaboration between NCI and AFIP to investigate the molecular pathogenesis of familial chordoma: EJ Rushing.
4. Hypoxic signaling in ischemic and metabolic brain lesions: EJ Rushing.
5. Incidence of neuritic plaques in brain radiation injury: EJ Rushing.
6. Meningiomas: study of unusual variants: EJ Rushing.
7. Pleomorphic xanthoastrocytoma: immunohistochemical and clinicopathological studies for evaluation of aggressive variants: EJ Rushing.
8. Review of neuromuscular pathology and neuropathology in Desert Storm and Gulf War veterans: CS Specht.

Collaborators

Military/Federal

1. COL William Campbell, MD, Department of Neurology, USUHS: Rhabdomyolysis Study Group.
2. Martha Quezado, MD, NIH: Chromogenic in situ hybridization of brain tumors.
3. James Smirniotopoulos, MD, Department of Radiology, USUHS: Neuroradiology of pleomorphic xanthoastrocytoma.
4. Ajay Verma, MD, Department of Neurology, USUHS: Epo-expression in brain tumors.
5. Alexander Vortmeyer, MD, NIH: Proteomic analysis of brain tumors.

Civilian

1. Deborah Blumenthal, MD, University of Utah, Department of Neurology: Hypermethylation status in glioblastoma after 06-benzylguanine treatment.
2. David N. Louis, MD, Matthew P. Frosch, MD, Harvard University School of Medicine, Boston, Mass: AFIP Central Nervous System Atlas of Non-tumor Pathology.
3. Mariarita Santi, MD, Children's Hospital National Medical Center, Washington, DC: Pediatric meningiomas, CISH and ependymoma and GBM.
4. Shanop Shuangshoti, MD, Department of Pathology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand: Supratentorial, extraventricular ependymomas.
5. Juan C. Troncoso, MD, Johns Hopkins University School of Medicine, Baltimore, Md: Histological review of brains in Baltimore longitudinal study of aging (BLSA).

Interdepartmental

Kelly Koeller, MD, Radiologic Pathology: Oligodendrogliomas and Erdheim-Chester disease.

PROFESSIONAL ACTIVITIES

Official Trips

1. February 2005, Consensus Conference on Juvenile Dermatomyositis, London, England, EJ Rushing.
2. February 2005, Space Shuttle Columbia Accident Investigation Committee Meeting, Kennedy Space Center, Fla, GD Sandberg.
3. June 2005, 81st Annual Meeting of the American Association of Neuropathologists, Arlington, Va, EJ Rushing, CS Specht, I Horkayne-Szakaly (AFIP, ARP).
4. June 2005, European Congress of Neuropathology, Amsterdam, The Netherlands, EJ Rushing.
5. June 2005, Space Shuttle Columbia Accident Investigation Committee Meeting, Johnson Space Center, Houston, Tex, GD Sandberg.
6. October 2005, Deutsche Gesellschaft für Neuropathologie und Neuroanatomie, Graz, Austria, EJ Rushing.

Manuscripts Reviewed

Members of the department reviewed 4 manuscripts for the following professional journals:

1. *Journal of Neuropathology and Experimental Neurology*, EJ Rushing
2. *Archives of Pathology and Laboratory Medicine*, EJ Rushing
3. *Neuropathology and Applied Neurobiology*, EJ Rushing

Grant Reviewed

The Myositis Association, EJ Rushing

DIVISION OF OPHTHALMIC PATHOLOGY

STAFF

Medical

Ahmed A. Hidayat, MD, Chief
Charles Specht, MD, Staff Pathologist
Emiko Furusato, MD, Fellow

Administrative

Erma R. Campbell, Secretary

IMPACT

- The division provides consultation services to pathologists of the Armed Forces, VA, US Public Health Service, and to civilians. Complete gross and microscopic examinations are made on enucleated eyeballs for contributors from hospitals where facilities and trained personnel are not available for this specialized work. Diagnoses are provided to medical centers on microslides of interesting, unusual, and/or difficult cases.
- Division staff conduct research based on the wealth of accumulated case material in the Registry of Ophthalmic Pathology. Research is often conducted with outside scientists or in collaboration with personnel in other departments and divisions, involving special histochemical, immunological, and electron microscopic techniques and specialized equipment.
- The division administers graduate training in ophthalmic pathology to residents, medical students, and fellows, and organizes and conducts courses in ophthalmic pathology.

CONSULTATION

The division provides “first echelon” consultation services to military and VA hospitals. Very few governmental hospitals have either technical or professional personnel trained to prepare whole eyes for histopathologic study or to evaluate alterations in sectioned eyes. The division, therefore, serves as the central laboratory for routine diagnostic work and consultation services in ophthalmic pathology. Similarly, there are many civilian communities throughout the

world where no facilities are available for this work. Through the auspices of the Registry of Ophthalmic Pathology, sponsored by the American Academy of Ophthalmology, the division renders consultation services to civilian contributors. Much of the routine work has been diverted to ophthalmic pathology laboratories at universities and other institutions. These laboratories now provide high-quality service and forward only the particularly difficult or unusually interesting cases to the AFIP, so that our division is receiving fewer but more difficult cases.

In 2 cases, we had major disagreements with the contributor; in 118 cases, there were minor diagnostic changes; and in 328 cases no contributor diagnosis was given. We agreed with the contributor in 180 of the cases.

<i>Cases</i>	<i>Completed</i>
Military	102
Federal (VA/PHS/OFA)	155
Civilian	371
Interdepartmental	14
Total	642

EDUCATION

Courses

In 2005, the division presented its annual course, “Ophthalmic Pathology for Ophthalmologists.” Division staff also present a daily clinicopathologic conference to residents in ophthalmology at NNMC, WRAMC, and local civilian programs.

Trainees

Division facilities and personnel are in great demand for training in various phases of ophthalmic pathology and research. During 2005, approximately 17 physicians began or completed training on a full-time basis for 3 to 18 months. We had one full-time fellow in training for a year, and 12 residents from local hospitals were assigned for 3 to 4 months. In addition, 4 medical students spent their elective months in the division.

Presentations

1. May 2005: Ft Lauderdale, Fla, Association for Research in Vision and Ophthalmology, “Surgical approach and initial histological results of an implantable high resolution epiretinal stimulation array in the pocrine model,” AA Hidayat.
2. May 2005: Ft Lauderdale, Fla, Association for Research in Vision and Ophthalmology, “Weak prognostic association between iris pigmentation and survival of patients with uveal malignant melanoma,” AA Hidayat.
3. December 2005: Washington, DC, AFIP Weekly Professional Staff Conference, “Sebaceous carcinoma of the ocular adnexa,” AA Hidayat.

RESEARCH

Projects

1. BCL-2 expression in melanocytic neoplasms of the conjunctiva: E Furusato, AA Hidayat.
2. Adenoma of the retinal pigment epithelium, in collaboration with Kurume University, Japan: AA Hidayat, E Furusato.
3. Amyloidosis-induced glaucoma, in collaboration with WRAMC: AA Hidayat.
4. Mitochondrial myopathy presenting with posterior keratopathy, in collaboration with WRAMC: AA Hidayat.
5. Intraocular lymphoproliferative disorders simulating uveitis, in collaboration with NIH: AA Hidayat.
6. Ligneous conjunctivitis. Molecular and clinical spectrum of type I plasminogen deficiency: a series of 50 patients, in collaboration with University of Leipzig, Germany: AA Hidayat.

PROFESSIONAL ACTIVITIES

Manuscripts Reviewed

Division staff reviewed 23 manuscripts for scientific journals in 2005.

Editorial Boards

Saudi Ophthalmology Journal, AA Hidayat.

ADVANCED PATHOLOGY

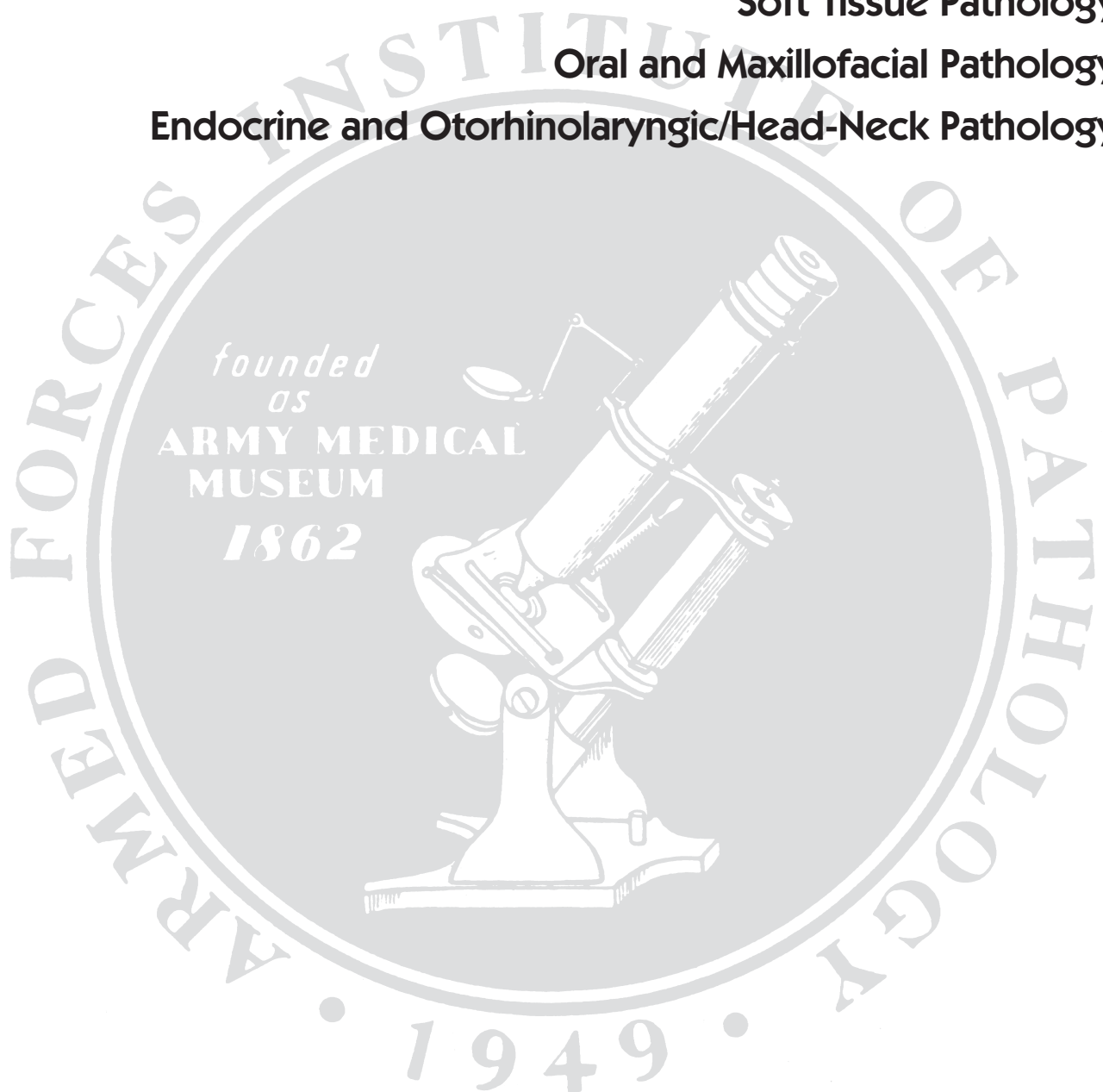
GROUP 2

Dermatopathology

Soft Tissue Pathology

Oral and Maxillofacial Pathology

Endocrine and Otorhinolaryngic/Head-Neck Pathology





George P. Lupton, MD
Chair
Date of Appointment — 1 July 1988

DEPARTMENT OF DERMATOPATHOLOGY

STAFF

- Medical**
George P. Lupton, MD, Chair
Maria-Magdalena Tomaszewski, MD, Assistant Chair
Luke S. Chung, MD
Walter L. Rush, MD
James R. Hallman, MD
Mike C. Royer, MAJ, MC, USA (since July 2005)

- Administrative**
Clara Desane
Vashti A. Jefferson
Margaret King (since October 2005)

IMPACT

The Department of Dermatopathology provides expert consultation on the highest volume of cases of any department in the Institute. The department has full accreditation by the Accreditation Council for Graduate Medical Education for its Dermatopathology Fellowship Training Program, the only one of its kind in the DoD, which provides training for military physicians leading to board certification in dermatopathology for the military services. In addition, we provide extensive training to numerous military and civilian rotating residents throughout the year.

CONSULTATION

The department provides consultation services in the field of dermatopathology for military, federal and civilian institutions. Many accessioned federal and civilian consultations are difficult cases, such as melanocytic lesions, that could present high-risk medicolegal problems. The total number of reviewed cases in 2005 was 9,591. Military and federal institutions submitted 7,230 cases, which constituted 81.7% of cases submitted in 2005. We changed the contributor's diagnosis in 235 cases, about 2.65%, greatly changing the treatment outcome and leading to a potential saving of millions of dollars in medical malpractice suits. We received 3,897 cases, over 44%, without a contributor diagnosis.

Cases	Completed
Military	3,720
Army (1,815)	
Navy (867)	
Air Force (1,038)	
Federal	3,510
VA (3,505)	
USPHS (5)	
Civilian	1,611
Interdepartmental	750
Total	9,591

EDUCATION

Department staff presented teaching and diagnostic slide conferences 4 times weekly for staff pathologists, dermatopathology fellows, residents, and visiting physicians. We also participated in teaching activities at the AFIP, such as weekly professional staff conferences and the Quarterly AFIP/VA and Military Histopathology Quality Assessment Program.

Trainees

- In 2005, the department provided training for a total of 47 trainees: 21 federal, 25 nonfederal, and 1 foreign national physician, fellows, and residents in dermatology, pathology and dermatopathology. Trainees spent an average of 28 days in our department, for a total of 1,214 training-days. They came from teaching facilities including WRAMC, National Naval Medical Center, Washington Hospital Center, Howard University Medical Center, Georgetown University Medical Center, George Washington University Medical Center, NIH, military teaching hospitals, and civilian institutions across the country.
- Two military dermatopathology fellows, 1 pathologist and 1 dermatologist, 16 dermatology residents (9 federal and 7 nonfederal), 28 pathology residents (9 federal, 18 nonfederal and 1 foreign visiting) and 1 federal visiting pathologist participated in our program.
- During the academic year 2004-2005, 2 military pathologists (1 Air Force and 1 Navy) were trained as dermatopathology fellows. Two other military dermatologists (1 Air Force and 1 Army) began their fellowship programs in July 2005.

Faculty Appointments

1. USUHS, Bethesda, Maryland, GP Lupton.
2. George Washington University School of Medicine, Washington, DC, GP Lupton.

Presentations

1. February 2005: New Orleans, La, 63rd Annual Meeting, American Academy of Dermatology, Clinicopathologic Conference, "Cutaneous malacoplakia," GP Lupton.
2. February 2005: New Orleans, La, 63rd Annual Meeting, American Academy of Dermatology, Clinicopathologic Conference, "Lobos disease," GP Lupton.
3. April 2005: Bethesda, Md, AFIP, 15th Annual Anatomic Pathology Course, "Melanocytic lesions of the skin," GP Lupton
4. April 2005: Bethesda, Md, AFIP, 15th Annual Anatomic Pathology Course, "Inflammatory dermatoses," WL Rush.
5. April 2005: Seoul, Korea, 38th Parallel Conference of 18th Medical Command, "Paraneoplastic dermatoses," LS Chung.
6. August 2005: Washington, DC, National Capital Consortium Dermatology Residents Conference, "Granulomatous dermatitis," MC Royer.
7. August 2005: Washington, DC, Washington Hospital Center Dermatology Grand Rounds, Pathology Case Presentations, MC Royer.
8. August 2005: Bethesda, Md, National Capital Consortium Dermatology Residents Conference, "Review of inflammatory dermatoses, part 1," MC Royer.
9. September 2005: Washington, DC, George Washington University Medical School, "An introduction to dermatopathology," MC Royer.
10. September 2005: Washington, DC, WRAMC Dermatology Grand Rounds, Pathology Case Presentations, MC Royer.
11. September 2005: Bethesda, Md, National Capital Consortium Dermatology Residents Conference, "Review of inflammatory dermatoses, part 2," MC Royer.
12. October 2005: Washington, DC, George Washington University Medical School, "Pathology of adnexal tumors," MC Royer.
13. October 2005: Washington, DC, National Capital Consortium Dermatology Residents Conference, "Cutaneous mucinosis," MC Royer.
14. October 2005: Bethesda, Md, National Capital Consortium Dermatology Residents Conference, "Review of epidermal and melanocytic neoplasms," MC Royer.
15. November 2005: Washington, DC, AFIP, Video Conference, "Inflammatory dermatoses," WL Rush.
16. November 2005: Washington, DC, Washington Hospital Center, Grand Rounds, WL Rush.
17. November 2005: Washington, DC, National Capital Consortium Dermatology Residents Conference, "Pathology of cysts and sinuses," MC Royer.
18. November 2005: Washington, DC, National Capital Consortium Dermatology Residents Conference, "Pathology of panniculitides," MC Royer.

19. November 2005: Bethesda, Md, National Naval Medical Center Clinic Rounds, Pathology Case Presentations, MC Royer.
20. November 2005: Washington, DC, Washington Hospital Center Dermatology Residents Conference, "Vesiculobullous disorders," MC Royer.
21. December 2005: Washington, DC, Washington Hospital Center, Grand Rounds, WL Rush.
22. December 2005: Bethesda, Md, National Capital Consortium Dermatology Residents Conference, "Comprehensive dermatopathology review," MC Royer.
23. December 2005: Washington, DC, Washington Hospital Center Dermatology Residents Conference, "Pathology of adnexal tumors," MC Royer.

RESEARCH

Projects

1. Tomaszewski M-M, Lupton GP: Spindle cell and epithelioid cell (Spitz) nevus in the African-American population.
2. Tomaszewski M-M, Shmookler B, Lupton GP: Cutaneous cribriform carcinoma-variant of apocrine carcinoma (submitted for publication).
3. Klassen-Fischer MK, Hallman JR, Neafie RC: Pathologic diagnoses of cutaneous disease clinically mimicking leishmaniasis (manuscript in preparation).
4. Royer MC: Pathology of neurothekeoma. In collaboration with the Department of Soft Tissue Pathology, AFIP.

PROFESSIONAL ACTIVITIES

Editorial Boards

American Journal of Dermatopathology, GP Lupton



Markku Miettinen, MD, PhD
Chair
Date of Appointment — 1 July 1996

DEPARTMENT OF SOFT TISSUE PATHOLOGY

STAFF

Medical

John J. Fetsch, MD, Assistant Chair
Julie C. Fanburg-Smith, MD, Director of Education
(A) Val Finell, Col, USAF, MC
Sumitra L. Parekh, COL, MC, USA

Scientific

Jerzy P. Lasota, MD, PhD, Research Pathologist
Virginia Achstetter, HT (ASCP), Senior Laboratory Technologist

Fellows

(A) Prakash Jha, MD
(A) Christopher Moosavi, MD

Administrative

David Dinges, Administrator
Charmaine Howard, Secretary

IMPACT

In 2005, we continued to analyze the AFIP database of over 3,000 gastrointestinal stromal and smooth muscle tumors, the world's largest, and generated systematic data on the behavior of small intestinal stromal tumors with different biologic parameters, such as histologic subtype, antigen expression, and specific types of KIT mutations. More aggressive clinical behavior was shown for small intestinal vs. gastric GISTs based on follow-up of 629 cases (paper to be published in 2006). Also, analyses of pediatric GISTs and GISTs in NF1 patients were completed, representing the world's largest series to date. These data, vitally important for the rational application of the new KIT tyrosine kinase inhibitor drugs, were the subject of several publications and presentations. We also reported the largest series of ectopic hamartomatous thymomas and nerve sheath myxomas, a series on childhood plantar and palmar fibromatosis with correlation to clinical syndromes, and analysis of benign epithelioid peripheral nerve sheath tumors.

CONSULTATION

Consultations included cytology, needle biopsies, excisional biopsies, resection and autopsy specimens of a wide variety of soft tissue lesions from a broad range of anatomic sites. We examined tumors with a wide variety of histogenesis, including examples of inflammatory, degenerative, post-traumatic, and iatrogenic conditions. We also saw specimens from a wide variety of locations as interdepartmental consultations. The overall volume of consultations decreased slightly from the previous year. However, consultations to VA hospitals increased slightly. We also handled cardiovascular consultations and, beginning in December 2005, cases from the Department of Orthopedic Pathology.

Cases	Completed
Military	627
Army (348)	
Navy (167)	
Air Force (112)	
Federal	457
VA (456)	
USPHS (1)	
Civilian	1,205
Interdepartmental	1,221
Total	3,510

Deployments

At WRAMC, COL Parekh participated in diagnostic anatomic pathology activities, and Drs. Fanburg-Smith and Fetsch delivered lectures on specific types of soft tissue tumors for the residency program. Col Finell acted as Military Consultant for Medical Ethics to the Air Force Surgeon General.

EDUCATION

Courses

Department staff participated as faculty in 3 AFIP courses and 1 non-AFIP course.

Trainees

The department hosted 6 military trainees for a total of 89 training days, and 16 civilian trainees for a total of 542 training days. Training consisted of review of departmental study sets, attendance at special training sessions and clinical conferences, and participation in research projects. Department staff participated in HPQA for DoD and VA facilities with submissions to the monthly case program.

Faculty Appointment

1. Adjunct Professor of Pathology, Anatomy and Cell Biology, Jefferson Medical College of Thomas Jefferson University, Philadelphia, Penn, M Miettinen.
2. Adjunct Professor of Pathology, University of Helsinki, Finland, M Miettinen.
3. Instructor in Pathology, Department of Pathology, USUHS, F. Edward Hebert School of Medicine, Bethesda, Md, J Fanburg-Smith.
4. Adjunct Associate Professor, Georgetown University Medical Center, Department of Pathology, Washington, DC, J Fanburg-Smith.
5. Clinical Tutor of Pathology, Georgetown University Medical Center, Department of Pathology, Washington, DC, S Parekh.

Presentations

1. February 2005: Washington, DC, Georgetown University Grand Rounds, "Differential diagnosis of gastrointestinal stromal tumors," M Miettinen.
2. February 2005: Las Vegas, Nev, ASCP Weekends of Pathology, "Diagnostic problems in soft tissue pathology," J Fetsch.
3. February 2005: San Antonio, Tex, US/CAP Annual Meeting, "True leiomyosarcoma of gastrointestinal tract: a clinicopathological and molecular genetic study of 43 cases," J Lasota.
4. March 2005: San Antonio, Tex, US/CAP Annual Meeting, "Gastrointestinal stromal tumors in children and young adults," M Miettinen.
5. March 2005: San Antonio, Tex, US/CAP Annual Meeting, "Subcutaneous leiomyosarcoma in children. A clinicopathologic study with emphasis on morphology and biologic behavior," J Fanburg-Smith.
6. March 2005: San Antonio, Tex, US/CAP Annual Meeting, "Palmar-plantar fibromatosis in children and preadolescents: a clinicopathologic study of 56 cases with long-term follow-up," J Fetsch.
7. March 2005: Bethesda Naval Hospital Pathology Residency Program, "Soft tissue pathology," J Fanburg-Smith.
8. March 2005: WRAMC Department of Pathology, "Soft tissue tumors," J Fanburg-Smith.
9. April 2005: Jyväskylä, Finland, Central Hospital of Middle Finland, "Gastrointestinal

- stromal tumors: from specific diagnosis to targeted treatment," M Miettinen.
10. April 2005: Philadelphia, Penn, Jefferson Medical College of Thomas Jefferson University, "Nerve sheath tumors: a slide seminar," M Miettinen.
 11. April 2005: Bethesda, Md, AFIP Anatomical Pathology Course, "Immunohistochemistry of soft tissue tumors," M Miettinen.
 12. April 2005: Bethesda, Md, AFIP Anatomic Pathology Course, "Classification of soft tissue tumors"; "Lipomatous tumors of soft tissue," J Fanburg-Smith.
 13. April 2005: Bethesda, Md, AFIP Anatomic Pathology Course, "Nerve sheath tumors of soft tissue," J Fanburg-Smith.
 14. April 2005: Bethesda, Md, AFIP Anatomic Pathology Course, "Myofibroblastic tumors of soft tissue," J Fanburg-Smith.
 15. April 2005: Bethesda, Md, AFIP Anatomic Pathology Course, "Vascular tumors of soft tissue," J Fanburg-Smith.
 16. April 2005: Bethesda, Md, AFIP Anatomic Pathology Course, "Soft tissue tumors of uncertain derivation," J Fetsch.
 17. April 2005: Washington, DC, Georgetown University Medical Center Grand Rounds, "Update on nerve sheath tumors," J Fanburg-Smith.
 18. May 2005: New Haven, Conn, Yale University Grand Rounds, "Gastrointestinal stromal tumors," M Miettinen.
 19. May 2005: Washington, DC, WRAMC and Bethesda Naval Hospital, "Lipomatous tumors," J Fanburg-Smith.
 20. May 2005: Washington, DC, WRAMC and Bethesda Naval Hospital, "Fibroblastic tumors," J Fanburg-Smith.
 21. May 2005: Washington, DC, WRAMC Department of Pathology, "Seminar on soft tissue tumors," J Fetsch.
 22. June 2005: Chicago, Ill, University of Illinois Grand Rounds, "Gastrointestinal stromal tumor: a tumor with oncogenic receptor tyrosine kinase mutation and specific treatment," M Miettinen.
 23. August 2005: Washington, DC, Howard University Medical Center, "Pseudosarcomatous tumors," J Fanburg-Smith.
 24. August 2005: Washington, DC, Howard University Medical Center, "Review and update on lipomatous lesions (including HFL and PHAT)," J Fanburg-Smith.
 25. September 2005: Bethesda, Md, AFIP Soft Tissue Course, "Introduction to soft tissue tumors," M Miettinen.
 26. September 2005: Bethesda, Md, AFIP Soft Tissue Course, "Gastrointestinal stromal and smooth muscle tumors," M Miettinen.
 27. September 2005: Bethesda, Md, AFIP Soft Tissue Course, "Immunohistochemistry of soft tissue tumors," M Miettinen.
 28. September 2005: Bethesda, Md, AFIP Soft Tissue Course, "Review of unknown cases," M Miettinen.
 29. September 2005: Bethesda, Md, AFIP Soft Tissue Course, "Pseudosarcomatous lesions," J Fanburg-Smith.
 30. September 2005: Bethesda, Md, AFIP Soft Tissue Course, "Review and update on lipomatous tumors," J Fanburg-Smith.
 31. September 2005: Bethesda, Md, AFIP Soft Tissue Course, "Review and update on nerve sheath tumors," J Fanburg-Smith.
 32. September 2005: Bethesda, Md, AFIP Soft Tissue Course, "Review and update on synovial sarcoma and epithelioid sarcoma," J Fetsch.
 33. September 2005: Bethesda, Md, AFIP Soft Tissue Course, "Dermatofibrosarcoma protuberans and related tumors," J Fetsch.
 34. September 2005: Bethesda, Md, AFIP Soft Tissue Course, "Epithelioid vascular tumors," J Fetsch.
 35. September 2005: Bethesda, Md, AFIP Soft Tissue Course, "Molecular diagnosis of soft tissue tumors," J Lasota.
 36. September 2005: Singapore, International Skeletal Society, "Peripheral hemangioblastoma," J Fanburg-Smith.
 37. September 2005: Singapore, International Skeletal Society, "Degenerative schwannoma," J Fanburg-Smith.
 38. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Intro-

- duction to soft tissue tumors," M Miettinen.
39. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Pleomorphic sarcomas," M Miettinen.
 40. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Immunohistochemistry of soft tissue tumors," M Miettinen.
 41. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Gastrointestinal stromal and smooth muscle tumors," M Miettinen.
 42. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Slide review of unknown cases," M Miettinen.
 43. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Nerve sheath tumors," J Fanburg-Smith.
 44. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Lipomatous tumors," J Fanburg-Smith.
 45. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Genetics of soft tissue tumors," J Fanburg-Smith.
 46. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Synovial sarcoma and epithelioid sarcoma," J Fetsch.
 47. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Epithelioid vascular tumors," J Fetsch.
 48. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Dermatofibrosarcoma protuberans and related tumors," J Fetsch.
 49. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Genetics of soft tissue tumors," J Lasota.
 50. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Update on small round cell tumors," J Lasota.
 51. October 2005: Kielce, Poland, First AFIP European Course on Soft Tissue Tumors, "Molecular diagnosis of soft tissue tumors," J Lasota.
 52. October 2005: Krakow, Poland, Jagellonian University GIST Symposium, "Pathology of gastrointestinal stromal tumors," M Miettinen.
 53. October 2005: Krakow, Poland, Jagellonian University GIST Symposium, "Molecular genetics of gastrointestinal stromal tumors," J Lasota.
 54. November 2005: Pittsburgh, Penn, University of Pittsburgh Resident Seminar, "Gastrointestinal stromal and other soft tissue tumors: a slide seminar," M Miettinen.
 55. November 2005: Pittsburgh, Penn, University of Pittsburgh Robert S. Totten Lecture, "Gastrointestinal stromal tumors," M Miettinen.
 56. November 2005: Valencia, Spain, Science and Cultural Center, "Soft tissue tumors: from morphology to molecular pathology," M Miettinen.

RESEARCH

Journal Articles

1. Billings SD, Giblen G, Fanburg-Smith JC. Superficial low-grade fibromyxoid sarcoma (Evans tumor): a clinicopathologic analysis of 19 cases with a unique observation in the pediatric population. *Am J Surg Pathol*. 2005;29:204-10.
2. Fetsch JF, Laskin WB, Miettinen M. Nerve sheath myxoma: a clinicopathologic and immunohistochemical analysis of 57 morphologically distinctive, S-100 protein- and GFAP-positive, myxoid peripheral nerve sheath tumors with a predilection for the extremities and a high local recurrence rate. *Am J Surg Pathol*. 2005;29:1615-24.
3. Fetsch JF, Laskin WB, Miettinen M. Palmar-plantar fibromatosis in children and preadolescents: a clinicopathologic study of 56 cases with newly recognized demographics and extended follow-up information. *Am J Surg Pathol*. 2005;29:1095-105.
4. Laskin WB, Fetsch JF, Lasota J, Miettinen M. Benign epithelioid peripheral nerve sheath tumors of the soft tissues: clinicopathologic spectrum of 33 cases. *Am J Surg Pathol*. 2005;29:39-51.
5. Laskin WB, Fetsch JF, Davis CJ Jr, Sesterhenn IA. Granular cell tumor of the penis: clinicopathologic evaluation of 9 cases. *Hum Pathol*. 2005;36:291-8.
6. Lasota J, Wozniak A, Kopczynski J, Dansonka-Mieszkowska A, Wasag B, Mitsuhashi T, Sarlomo-Rikala M, Lee JR, Schneider-Stock R, Stachura J, Limon J, Miettinen M. Loss of heterozygosity on chromosome 22q in gastrointestinal stromal tumors (GISTs): a study on 50 cases. *Lab Invest*. 2005;85:237-47.

7. Lassus P, Ristimäki A, Huuhtanen R, Tukiainen E, Asko-Seljavaara S, Andersson LC, Miettinen M, Blomqvist C, Haglund C, Bohling T. Cyclooxygenase-2 expression in human soft-tissue sarcomas is related to epithelial differentiation. *Anticancer Res.* 2005;25:2669-74.
8. Levy AD, Patel N, Dow N, Abbott RM, Miettinen M, Sobin LH. From the archives of the AFIP: abdominal neoplasms in patients with neurofibromatosis type 1: radiologic-pathologic correlation. *RadioGraphics.* 2005;25:455-80.
9. Levy AD, Quiles AM, Miettinen M, Sobin LH. Gastrointestinal schwannomas: CT features with clinicopathologic correlation. *AJR Am J Roentgenol.* 2005;184:797-802.
10. Miettinen M, Sobin LH, Lasota J. Gastrointestinal stromal tumors of the stomach: clinicopathologic, immunohistochemical, and molecular genetic study of 1765 cases with long-term follow-up. *Am J Surg Pathol.* 2005;29:52-68.
11. Miettinen M, Lasota J, Sobin LH. Gastrointestinal stromal tumors of the stomach in children and young adults: a clinicopathologic, immunohistochemical, and molecular genetic study of 44 cases with long-term follow-up and review of the literature. *Am J Surg Pathol.* 2005;29:1373-81.
12. Miettinen M, Lasota J. KIT (CD117): a review on expression in normal and neoplastic tissues, and mutations and their clinicopathologic correlation. *Appl Immunohistochem Mol Morphol.* 2005;13:205-20.
13. Motamedi K, Murphey MD, Fetsch JF, Furlong MA, Vinh TN, Laskin WB, Sweet DE. Villonodular synovitis (PVNS) of the spine. *Skeletal Radiol.* 2005;34:185-95.
14. Murphey MD, Arcara LK, Fanburg-Smith J. From the archives of the AFIP: imaging of musculoskeletal liposarcoma with radiologic-pathologic correlation. *RadioGraphics.* 2005;25:1371-95.
15. Padula A, Chin NW, Azeez S, Resatkova E, Andriko JA, Miettinen M. Primary gastrointestinal stromal tumor of the esophagus in an HIV-positive patient. *Ann Diagn Pathol.* 2005;9:49-53.
16. Saturday GA, Lasota J, Frost D, Brasky KB, Hubbard G, Miettinen M. KIT-positive gastrointestinal stromal tumor in a 22-year-old male chimpanzee (*Pan troglodites*). *Vet Pathol.* 2005;42:362-5.
17. Schneider-Stock R, Boltze C, Lasota J, Peters B, Corless CL, Ruemmele P, Terracciano L, Pross M, Insabato L, Di Vizio D, Iesalnieks I, Dirnhofer S, Hartmann A, Heinrich M, Miettinen M, Roessner A, Tornillo L. Loss of p16 protein defines high-risk patients with gastrointestinal stromal tumors: a tissue microarray study. *Clin Cancer Res.* 2005;11(2 Pt 1):638-45.
18. Urbanczyk K, Limon J, Korobowicz E, Chosia M, Sygut J, Karcz D, Iwanik K, Osuch C, Lasota J, Stachura J. Gastrointestinal stromal tumors. A multicenter experience. *Pol J Pathol.* 2005;56:51-61.
19. Vos JA, Abbondanzo SL, Barekman CL, Andriko JW, Miettinen M, Aguilera NS. Histiocytic sarcoma: a study of five cases including the histiocyte marker CD163. *Mod Pathol.* 2005;18:693-704.

Abstracts (Presented at the US/CAP Annual Meeting, San Antonio, Tex, March 2005)

1. Fanburg-Smith JC, Coffin CC, Miettinen M. Subcutaneous leiomyosarcoma in children. A clinicopathologic study with emphasis on morphology and biologic behavior. *Mod Pathol.* 2005;18:14A.
2. Fetsch JF, Laskin WB, Miettinen M. Palmar-plantar fibromatosis in children and preadolescents: a clinicopathologic study of 56 cases with long-term follow-up. *Mod Pathol.* 2005;18:14A.
3. Lasota J, Sobin LH, Miettinen M. True leiomyosarcoma of gastrointestinal tract. A clinicopathological and molecular genetic study of 43 cases. *Mod Pathol.* 2005;18:17A.
4. Miettinen M, Lasota J, Sobin LH. Gastrointestinal stromal tumors (GISTs) of stomach in children and young adults: a study of 46 cases. *Mod Pathol.* 2005;18:18A.

Projects

1. Classification of unusual vascular tumors.
2. Genotypic and phenotypic characterization of myogenic tumors.
3. Fibrosarcomatous transformation of dermatofibrosarcoma protuberans.
4. Ectopic hamartomatous thymoma.
5. Epithelial differentiation in synovial and epithelioid sarcoma and related tumors.
6. Molecular pathologic analysis of soft tissue tumors.

7. Triton tumors.
8. Malignant peripheral nerve sheath tumors arising in neurofibroma.
9. Pathology of fibromas.
10. Cartilaginous neoplasms of soft tissues.

Collaborators

Civilian

1. Sonja Erikson-Steigen, University of Tromso, Norway
2. Zoran Gatalica, Creighton University, Omaha, Neb
3. William B. Laskin, Northeastern University, Chicago, Ill
4. Janusz Limon, Medical Academy of Gdansk, Poland
5. Timothy O'Leary, Department of Veterans Affairs
6. Michal Michal, Faculty Hospital, Pilsen, Czech Republic
7. Fabrizio Remotti, College of Physicians and Surgeons, New York
8. Janusz Rys, Oncology Hospital, Krakow, Poland
9. Maarit Sarlomo-Rikala, University of Helsinki, Finland
10. Brian Rubin, University of Washington, Seattle
11. Jerzy Stachura, Jagellonian University, Krakow, Poland
12. Bartosz Wasag, Medical Academy of Gdansk, Poland
13. Sharon W. Weiss, Emory University, Atlanta, Ga

Interdepartmental

1. Division of Gastrointestinal Pathology
2. Department of Neuropathology
3. Department of Veterinary Pathology
4. Department of Hematologic and Lymphatic Pathology
5. Department of Radiologic Pathology
6. Department of Molecular Pathology
7. Department of Genitourinary Pathology

PROFESSIONAL ACTIVITIES

Editorial

Department members reviewed 84 manuscripts for peer-reviewed scientific journals during 2005 and held the following editorial board memberships or editorships:

1. *American Journal of Surgical Pathology* (M Miettinen)
2. *Applied Immunohistochemistry and Molecular Morphology* (M Miettinen)
3. *Annals of Diagnostic Pathology* (JC Fanburg-Smith, M Miettinen)
4. *Archives of Pathology*, Section Editor for Soft Tissue (J Fetsch, M Miettinen)
5. *Human Pathology* (J Lasota, M Miettinen)
6. *Virchows Archiv* (M Miettinen)

Academic Peer Review

M Miettinen performed academic promotion reviews for Vanderbilt University, Nashville, Tenn, and Stanford University, Palo Alto, Calif.



Robert D. Foss, CAPT, DC, USN
Chair
Date of Appointment — 16 September 2004

DEPARTMENT OF ORAL AND MAXILLOFACIAL PATHOLOGY

STAFF

Dental

Robert D. Foss, CAPT, DC, USN, Chair
Stephen B. Williams, COL, DC, USA
Christopher G. Fielding, COL, DC, USA
David L. Wells, Lt Col, USAF, DC
Jose Colon, DMD
S. Marc Stokes, LCDR, DC, USN
Mikelle Kernig, Maj, USAF, DC, Resident

Administrative

Patricia Ashburn, Secretary

IMPACT

- Deployments on forensic missions in support of the Office of the Armed Forces Medical Examiner (OAFME) included a number of high-profile mass disasters and support of Operation Iraqi Freedom. These forensic missions provided rapid, accurate identification of disaster victims and the timely return of remains to next of kin. In 2005, department staff performed 1,095 postmortem dental examinations at the Carson Mortuary at Dover AFB, Del, including active duty OIF or OEF casualties, civilian deaths in theater, Iraqi enemy prisoners of war and other military deaths worldwide. Also in 2005, 670 antemortem dental records were available for review, resulting in 630 “positive” identifications, 9 “consistent with” identifications, and 31 “unidentified”.
- The department deployed off-site forensic dental identification training laboratories to 15 military commands and provided 4,800 man-hours of readiness training for future mass casualty disasters. These laboratory exercises are a major source of forensic dental identification training in the US Armed Forces.
- At the annual meeting of the American Academy of Oral and Maxillofacial Pathology (AAOMP), the AFIP Slide Seminar continues to be the most popular continuing education course and is always fully subscribed. In its 26th year, the seminar promotes the department and the Registry of Oral and Maxillofacial Pathology as a world leader in this specialty area.
- The third year of the residency program in oral and maxillofacial pathology, National Naval Dental School, conducted at the AFIP, is structured to provide opportunities for research and individual and collective slide and case review with staff. Presentation of a research project by the residents at the Annual Meeting of the AAOMP promotes our missions of education and research.
- The department chair is the Consultant to the Surgeon General of the Navy for Oral and Maxillofacial Pathology and is Acting Associate Director, Navy, AFIP, overseeing 48 assigned Navy personnel. COL Fielding is the Army Surgeon General’s Consultant for Oral and Maxillofacial Pathology and Forensic Dentistry.

CONSULTATION

<i>Cases</i>	<i>Completed</i>
Military	448
Army (213)	
Navy (126)	
Air Force (109)	
Federal	280
VA (275)	
USPHS (4)	
OFA (1)	
Civilian	767
Interdepartmental	115
Total	1,610

Our department consults on the wide variety of pathologic processes that affect the oral mucosa, jaws, major and minor salivary glands and associated structures in the maxillofacial region, including odontogenic cysts and tumors, fibro-osseous lesions, salivary gland neoplasia, lymphoid processes, soft tissue tumors, and metastatic disease. We perform consultative services for US Army, Navy, and Air Force medical treatment facilities, VA medical centers, and US Public Health Service medical treatment centers, as well as civilian facilities around the world.

Our department received 1,495 outside consultation cases in 2005. Major changes in diagnosis were made in 27 cases, minor changes in 519 cases, and no change in the contributor diagnosis in 841 cases. We received 76 cases with no contributor diagnosis; 22 cases were recorded without coding. Turnaround time averaged 4.5 days.

Deployments

Members of the department are prepared to deploy within 4 hours of notification. In 2005, we had 45 deployments in support of the OAFME with rapid, accurate and reliable dental identification. Using state-of-the-art digital technology, we completed identifications within hours of postmortem examination. This vital service facilitates the rapid return of remains to the family.

Forensic Missions to Dover AFB for Operation Iraqi Freedom

- RD Foss—3
- SB Williams—6
- CG Fielding—7
- DL Wells—3
- J Colon—7
- M Stokes—9

Clinical Appointments

1. Consultant to the Surgeon General (Army) in Oral and Maxillofacial Pathology, CG Fielding.
2. Consultant to the Surgeon General (Army) in Forensic Dentistry, CG Fielding.
3. Consultant to the Navy Surgeon General in Oral and Maxillofacial Pathology, RD Foss.

EDUCATION

Courses

Department staff participated in 12 AFIP/ARP courses, including the department's major course offering, Forensic Dental Identification and Emerging Technologies, for a total of 11,000 man-hours of training. The staff participated in 13 non-AFIP courses, providing an additional 1,809 man-hours of education. Portable forensic dental identification workshop kits were deployed 15 times for 4,800 man-hours of training for military personnel.

The Registry of Oral and Maxillofacial Pathology Case of the Month course has become a Web-accessible online continuing education program available by subscription. It is used by pathologists for peer review and education, and is recognized by the American Board of Oral

and Maxillofacial Pathology for fulfillment of the continuing competency requirements for maintenance of board certification. Each case is originally presented as an unknown, then followed up with a presentation of participant diagnoses, AFIP diagnosis, and a discussion. Twelve new cases are posted each year. Older cases are archived on the website and are available for study.

Trainees

The department had 3 third-year residents in oral and maxillofacial pathology during 2005. One resident remained at the AFIP as a staff member. The department had 4 visiting residents for 100 man-days of training.

Presentations

1. January 2005: Washington, DC, AFIP, "Oral and maxillofacial pathology for radiologists," M Stokes.
2. January 2005: Rockville, Md, George Washington University's Principles of Forensic Science Course, Introduction to Forensic Dentistry, "Personal identification and bite mark analysis," CG Fielding.
3. January 2005: Bethesda, Md, Naval Postgraduate Dental School, "Bone pathology of the craniofacial skeleton," CG Fielding.
4. February 2005: Bethesda, Md, Naval Postgraduate Dental School, "Salivary gland pathology," M Stokes.
5. February 2005: Bethesda, Md, Naval Postgraduate Dental School, "Soft tissue tumors," RD Foss.
6. February 2005: San Diego, Calif, Naval Dental Center Southwest, "Hematology and lymphoid tumors of the head and neck," RD Foss.
7. February 2005: San Diego, Calif, Naval Dental Center Southwest, "Forensic dentistry overview," RD Foss.
8. February 2005: Washington, DC, AFIP Otolaryngic Pathology Course, "Malignant bone tumors," RD Foss.
9. February 2005: Bethesda, Md, Naval Postgraduate Dental School, "Odontogenic cysts," DL Wells.
10. February 2005: San Diego, Calif, Naval Medical Center, Oral Medicine and Oral Pathology Course, "Odontogenic cysts," "Radiographic pathology," DL Wells.
11. February 2005: Washington, DC, AFIP, "Oral and maxillofacial pathology for radiologists," DL Wells.
12. February 2005: Washington, DC, WRAMC, "Salivary gland pathology," DL Wells.
13. February 2005: Bethesda, Md, Naval Postgraduate Dental School, "Bone pathology of the craniofacial skeleton," CG Fielding.
14. March 2005: Bethesda, Md, AFIP 41st Annual Forensic Dental Identification and Emerging Technologies Workshop, "Introduction to forensic dentistry," CG Fielding.
15. April 2005: Washington, DC, WRAMC, Post Professional Short Course in Oral Pathology, Oral Medicine, and Oral Diagnosis, "Benign and malignant bone lesions of the jaws," CG Fielding.
16. April 2005: Bethesda, Md, Naval Postgraduate Dental School, "Salivary gland pathology," M Stokes.
17. April 2005: Bethesda, Md, National Naval Medical Center, "Oral pathology-clinical pathologic correlation," M Stokes.
18. April 2005: Sandestin, Fla, AAOMP Annual Meeting, "Reticular myoepithelioma: a clinicopathologic correlation study," M Stokes.
19. April 2005: Sandestin, Fla, AAOMP Annual Meeting, "Lymphoepithelial carcinoma of the head and neck skin," DL Wells.
20. April 2005: Sandestin, Fla, AAOMP Annual Meeting, AFIP Seminar, "HIV-associated sialadenitis, sebaceous adenocarcinomas," SB Williams.
21. April 2005: Sandestin, Fla, AAOMP Annual Meeting, AFIP Seminar, "Hemgiopericytoma, atypical ameloblastoma," RD Foss.
22. April 2005: Sandestin, Fla, AAOMP Annual Meeting, AFIP Seminar, "Lymphoepithelial carcinoma and tonsillar polypoid hamartoma," CG Fielding.
23. April 2005: Sandestin, Fla, AAOMP Annual Meeting, AFIP Seminar, "Adult rhabdomyoma, plexiform fibrohistiocytic tumor, mesenchymal chondrosarcoma," DL Wells.
24. April 2005: Sandestin, Fla, AAOMP Annual Meeting, "Case presentation," DL Wells.

25. April 2005: Bethesda, Md, AFIP Anatomic Pathology Course, "Odontogenic cysts and tumors," RD Foss.
26. April 2005: Bethesda, Md, AFIP Anatomic Pathology Course, "Salivary gland tumors," RD Foss.
27. April 2005: Washington, DC, AFIP, "Oral and maxillofacial pathology for radiologists," DL Wells.
28. April 2005: Washington, DC, Army Oral Pathology Short Course, "Syndromes of the head and neck," DL Wells.
29. April 2005: Washington, DC, WRAMC, "Clinico-pathologic conference," SB Williams.
30. April 2005: Washington, DC, WRAMC, "Odontogenic tumors," DL Wells.
31. April 2005: Rockville, Md, George Washington University's Principles of Forensic Science Course, Introduction to Forensic Dentistry, "Personal identification and bite mark analysis," CG Fielding.
32. May 2005: Barksdale AFB, La, Four-Day Combined Oral Pathology and Dental Forensics Course, SL Wells.
33. July 2005: Rockville, Md, George Washington University's Principles of Forensic Science Course, Introduction to Forensic Dentistry, "Personal identification and bite mark analysis," CG Fielding.
34. August 2005: Washington, DC, American Academy of General Dentistry Fellowship Review Course, "Oral pathology," M Stokes.
35. September 2005: Washington, DC, AFIP Radiology Course, "Radiologic differential diagnosis of the jaws," M Stokes.
36. September 2005: Rockville, Md, George Washington University's Principles of Forensic Science Course, Introduction to Forensic Dentistry, "Personal identification and bite mark analysis," CG Fielding.
37. October 2005: Washington, DC, AFIP Grand Rounds VTC, "Variations on a theme: some malignant myoepithelial salivary tumors," SB Williams.
38. October 2005: Milwaukee, Wis, Dental Forum of Milwaukee, "Forensic dental identification," RD Foss.
39. October 2005: Milwaukee, Wis, Dental Forum of Milwaukee, "Benign fibro-osseous lesions," RD Foss.
40. October 2005: Milwaukee, Wis, Dental Forum of Milwaukee, "Differential diagnosis of oral mass lesions," RD Foss.
41. October 2005: Milwaukee, Wis, Dental Forum of Milwaukee, "Pathologic mimics," RD Foss.
42. December 2005: Washington, DC, George Washington University, "Introduction to oral and maxillofacial pathology," J Colon.

RESEARCH

Journal Articles

1. Shilo K, Foss RD, Franks TJ, DeParalta-Venturina M, Travis WD. Pulmonary mucoepidermoid carcinoma with prominent tumor-associated lymphoid proliferation. *Am J Surg Pathol*. 2005;29:407-11.
2. Clark CL, Thompson SH, Brown SA, Fielding C, Baur DA, Helman JI. Asymptomatic radiolucent lesion of the posterior mandible. *J Oral Maxillofac Surg*. 2005;63:377-81.
3. Bunch AW, Fielding CG. The use of World War II chest radiograph in the identification of a missing-in-action U.S. Marine. *Mil Med*. 2005;170:239-42.

Abstracts

1. Stokes M, Foss R, Williams S. Reticular myoepithelioma: a clinicopathologic correlation study. *Oral Surg Oral Med Oral Pathol [A]*. 2005;100:192.
2. Welch P, Williams S, Foss R, Tomaszewski M. Lymphoepithelial-like carcinoma of head and neck skin: a report of 11 cases and review of the literature. *Oral Surg Oral Med Oral Pathol [A]*. 2005;100:193.
3. Hellstein J, Fielding C. Bisphosphonate osteochemonecrosis: clinical findings and treatment theories may relate to a possible analogy with "phossy" jaw. *Oral Surg Oral Med Oral Pathol [A]*. 2005;100:189-90.

Projects

1. Sialoblastomas.
2. Atypical chondroid neoplasia of the jaws.

3. Clear cell odontogenic tumors.
4. Adenoid cystic carcinoma of the nasal region.
5. Dermoid cysts of the maxillary sinus.
6. Genotyping and immunohistochemical analysis of odontogenic tumors.
7. Teleforensic dental identification demonstration project.
8. Reticular myoepithelioma.
9. Lymphoepithelial carcinoma of the skin from the head and neck.
10. Lesions of the uvula.
11. Oral manifestations of plasmablastic lymphoma.

Collaborators

Civilian:

Jennifer Hunt, MD: Genotyping of odontogenic tumors.

Interdepartmental:

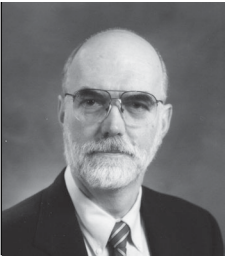
Julie Fanburg-Smith, MD: Soft tissue tumors of the head and neck.

John Fetsch, MD: Benign fibroblastic lesions.

PROFESSIONAL ACTIVITIES

Official Trips

1. April 2005, AAOMP, Sandestin, Fla, RD Foss, SB Williams, DL Wells, CG Fielding (AFIP).
2. May 2005, Forensic Workshop and Oral Pathology Continuing Education Coursework, Barksdale AFB, La, DL Wells (Barksdale AFB).
3. January 2005, Teaching Chiefs Conference, San Antonio, Tex, CG Fielding (AMEDD).
4. July 2005, Advanced Educational Program in General Dentistry Residency Program, Ft Jackson, SC, CG Fielding (Ft Jackson DENTAC).
5. September 2005, WESTOP, Case exchange and continuing educational program for teachers of oral pathology, Stillwater, Minn, CG Fielding (AFIP).
6. September 2005, IACUC Advanced Workshop, Durham, NC, RD Foss (AFIP).
7. October 2005, American Board of Oral and Maxillofacial Pathology, Tampa, Fla, M Stokes (Navy Medical Education and Training Command).
8. November 2005, Advanced Educational Program in General Dentistry Residency Program, Support for DENTAC Continuing Education Program, Ft Campbell, Ky, CG Fielding (Ft Campbell DENTAC).



Dennis K. Heffner, MD
Chair
Date of Appointment — 1 September 1984

DEPARTMENT OF ENDOCRINE AND OTORHINOLARYNGIC/HEAD-NECK PATHOLOGY

STAFF

Medical

- Dennis K. Heffner, MD, Chair
- Clara S. Heffess, MD, Chief, Division of Endocrine Pathology
- Jacqueline A. Wieneke, MD, Chief, Division of Otorhinolaryngic/Head-Neck Pathology

Administrative

- (D) Carlos Mena, Administrative Assistant

IMPACT

Approximately 30% of our consultation cases resulted in a change of diagnosis from the contributors' impressions, most with a significant (and sometimes crucial) effect on patient treatment decisions. The quality and impact of our diagnostic consultations are seen most clearly in those rare or difficult cases where our diagnostic experience could not have been matched anywhere in the world.

CONSULTATION

The department consults on difficult or controversial histopathologic diagnostic cases received from US military medical commands or facilities, VA medical centers, US Public Health centers, and nongovernmental civilian hospitals in the United States and abroad. The vast majority of cases are active surgical pathology cases with patient treatment decisions awaiting the consultative diagnostic evaluation. Our staff deals with a broad spectrum of pathologic conditions, consisting of a multitude of disease entities affecting the upper respiratory tract, ear, and adjacent or related anatomic areas of the head and neck, and diseases of the pancreas, adrenal, thyroid and parathyroid glands.

<i>Cases</i>	<i>Completed</i>
Military	608
Army (282)	
Navy (172)	
Air Force (154)	
Federal	474
VA (473)	
USPHS (1)	
Civilian	1,151
Interdepartmental	191
Total	2,424

EDUCATION

Courses: A 4-week Otolaryngic Basic Science Course was presented in March 2005, attended by 12 military and 9 civilian surgeons. Approximately one fourth of the course time was composed of pathology instruction provided by departmental staff, totaling 840 man-hours of instruction.

Presentations

1. January 2005: Washington, DC, Georgetown University Medical Center, "Adrenal, thyroid, and parathyroid pathology," JA Wieneke.
2. February 2005: Washington, DC, AFIP, 43rd Annual ENT Basic Science Course, "Pathology in the management of head and neck patients," JA Wieneke.
3. April 2005: Washington, DC, AFIP, 15th Annual Anatomic Pathology Review Course, "Otolaryngic-head and neck pathology," JA Wieneke.
4. September 2005: Paris, France, European Congress on Pathology, Symposium on Tumors and Pseudotumors of the Ear, "Langerhans cell histiocytosis," JA Wieneke.

RESEARCH

Journal Articles

1. Heffner DK. Chaotic tumors and two mistakes of molecular oncologists. *Ann Diagn Pathol.* 2005;9:61-7.
2. Rodrigo JP, Suarez C, Rinaldo A, Devaney KO, Carbone A, Barnes L, Heffner DK, Ferlito A. Idiopathic midline destructive disease: fact or fiction? *Oral Oncol.* 2005;41:340-8.

Book Chapters

1. Wieneke JA, Lack EE. The adrenal gland. In: Silverberg SG, DeLellis RL, Frable WJ, LiVolsi VA, Wick M, eds. *Principles and Practice of Surgical Pathology and Cytopathology*. Philadelphia: WB Saunders (Elsevier Science); 2005.
2. Wieneke JA, Lack EE. The adrenal glands. In: Bostwick DG, Eble JN, eds. *Urologic Surgical Pathology*. 2nd ed. St. Louis, Mo: Mosby; 2005.

PROFESSIONAL ACTIVITIES

Official Trips

October 30-November 4, 2005, 13th International Thyroid Congress, Buenos Aires, Argentina, CS Heffess (ARP).

Manuscripts Reviewed

In 2005 the staff reviewed numerous professional articles for suitability for publication in peer-reviewed professional journals.

Editorial Boards

1. Associate Editor, *Endocrine Pathology*, CS Heffess
2. Editorial Board, *Ear, Nose, and Throat Journal*, DK Heffner

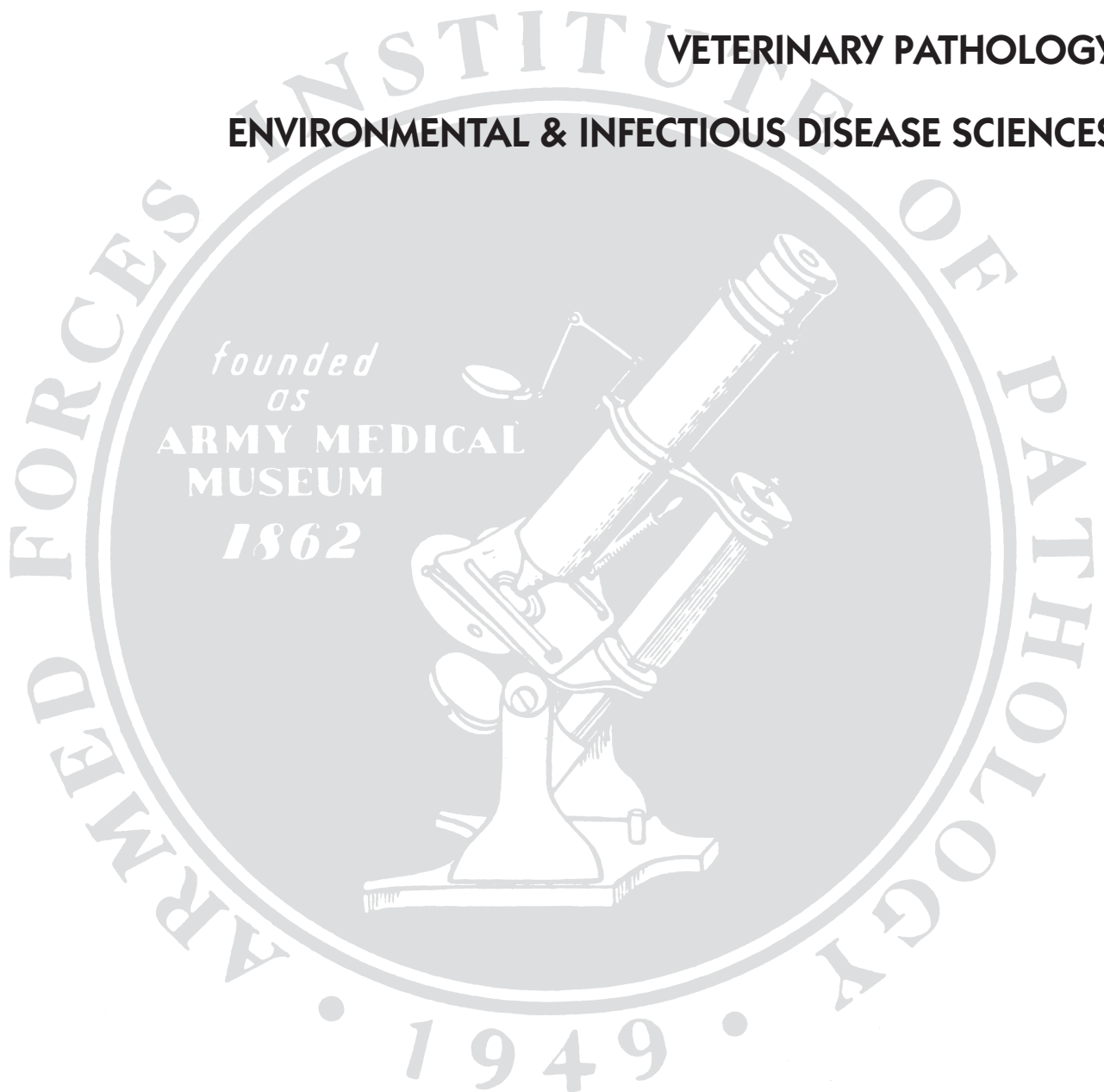
ADVANCED PATHOLOGY

GROUP 3

HEMATOPATHOLOGY

VETERINARY PATHOLOGY

ENVIRONMENTAL & INFECTIOUS DISEASE SCIENCES





Nadine S. Aguilera, MD
Chair
Date of Appointment – March 2005

DEPARTMENT OF HEMATOPATHOLOGY

STAFF

- Medical**
(D) Susan L. Abbondanzo, MD, Chair
Nadine S. Aguilera, MD, Chair
Aaron Auerbach, MD, Staff Pathologist
(D) Jeannie Muir-Pedilla, MAJ, MC, USA, Fellow
(A) Daniel Schaffer LTC, MC, USA, Fellow

- Administrative**
Michele L. Kelly, Administrator
Tasha Portee, Secretary

IMPACT

We are the only ACGME-accredited hematopathology training program in the 3 branches of the military. We published one peer-reviewed paper in 2005 and have 2 more in press.

CONSULTATION

The department renders expert consultation on cases involving the pathology of the hemato-poietic system, including lymph nodes, spleen, and bone marrow. Cases are submitted by the DoD and VA, and by civilian hospitals worldwide. Staff members participate in various local and national educational and research endeavors involving topics related to hematopathology.

<u>Cases</u>	<u>Completed</u>
Military	213
Army (98)	
Navy (54)	
Air Force (61)	
Federal	654
VA (639)	
Other (15)	
Civilian	298
Interdepartmental	1,043
Total	2,208

EDUCATION

- Courses**
Department staff participated as faculty and presented 5 lectures at the AFIP Anatomic Pathol-ogy Review Course.

Trainees: The department hosted 2 military fellows in 6-month rotations in 2005 and accommodated one 2-week visitor.

The department has been accredited by the Accreditation Council for Graduate Medical Education for a hematopathology fellowship program. Education for 2 hematopathology fellows-in-training has been approved. The program utilizes the clinical laboratories and staff at WRAMC and the NNMCM in a combined institutional fellowship headed at the AFIP. It is the only accredited military graduate medical education program in hematopathology. Our program was inspected in November of 2001 by the ACGME. The next site visit will be in 2006.

Faculty Appointments

Adjunct Associate Professor, USUHS, NS Aguilera.

Presentations

1. January 2005: Washington, DC, National Capital Consortium Pathology Residents, "Interpretation of liver biopsies," A Auerbach.
2. February 2005: Washington, DC, National Capital Consortium Pathology Residents, "Interpretation of liver biopsies," A Auerbach.
3. February 2005: Washington, DC, National Capital Consortium Pathology Residents, "Novel interpretation of pulmonary biopsies," A Auerbach.
4. April 2005: Bethesda, Md, AFIP, 15th Annual Anatomic Pathology Course, "Attack of the killer Bs: small B cell lymphoma," A Auerbach.
5. April 2005: Bethesda, Md, AFIP, 15th Annual Anatomic Pathology Course, "What you don't know about large cell lymphoma," A Auerbach.
6. April 2005: Bethesda, Md, AFIP, 15th Annual Anatomic Pathology Course, "T and NK-cell lymphoma," NS Aguilera.
7. April 2005: Bethesda, Md, AFIP, 15th Annual Anatomic Pathology Course, "Hodgkin lymphoma," NS Aguilera.
8. April 2005: Bethesda, Md, AFIP, 15th Annual Anatomic Pathology Course, "Benign reactive lymphadenopathy," NS Aguilera.
9. May 2005: Philadelphia, Penn, Osler Institute, "Cardiac pathology," A Auerbach.
10. May 2005: Philadelphia, Penn, Osler Institute, "Liver pathology," A Auerbach.
11. May 2005: Washington, DC, AFIP Weekly Professional Staff Conference, "Extranodal lymphoma," A Auerbach, J Muir-Padilla.
12. June 2005: Tampa, Fla, Osler Institute, "Liver pathology," A Auerbach.
13. June 2005: Tampa, Fla, Osler Institute, "Cardiac pathology," A Auerbach.
14. September 2005: Bethesda, Md, AFIP 11th Annual Gastrointestinal and Hepatic Conference, "Lymphoid proliferations in the gastrointestinal system," A Auerbach.
15. October 2005: Washington, DC, National Capital Consortium Pathology Residents, "Reactive conditions in the lymph node," A Auerbach.

RESEARCH

Journal Articles

1. Chu W-S, Furusato B, Wong K, Sesterhenn IA, Mostofi FK, Wei M-Q, Zhu Z, Abbondanzo SL, Liang Q. Ultrasound-accelerated formalin fixation of tissue improves morphology, antigen and mRNA preservation. *Mod Pathol.* 2005;18:850-63.
2. Vos JA, Abbondanzo SL, Barekman CL, Andriko JW, Miettinen M, Aguilera NS. Histiocytic sarcoma: a study of five cases including the histiocytic marker CD163. *Mod Pathol.* 2005;18:693-704.
3. Thompson WM, Levy AD, Aguilera NS, Gorospe L, Abbott RM. Angiosarcoma of the spleen: imaging characteristics in 12 patients. *Radiology.* 2005;235:106-15.
4. Cook JR, Aguilera NI, Reshmi S, Huang X, Yu Z, Gollin SM, Abbondanzo SL, Swerdlow SH. Deletion 6q is not a characteristic marker of nodal lymphoplasmacytic lymphoma. *Cancer Genet Cytogenet.* 2005;162:85-8.

Abstract

Auerbach A, Mehrotra A, Goodman Z, Zhu J, Chen L, Apelian D, Wilber R. Correlation of hepatitis B surface antigen and hepatitis B core antigen immunohistochemical stains with serum HBV DNA and ALT in patients with chronic HBV. *Mod Pathol.* 2005;18 (Suppl 1):274A.

Projects

1. Atypical follicular hyperplasia in children.
2. Splenic non-lymphomatous neoplasms.
3. Lymphoplasmacytoid lymphoma/immunocytoma.
4. Determination of proto-oncogene overexpression in lymphoma.
5. Diffuse large B-cell lymphoma, 2 unusual subtypes.

Collaborators

Military/Federal

1. Elaine S. Jaffe, MD, NIH: Histiocytic neoplasms.
2. With the accreditation of our fellowship program, we have added a collaborative education mission with NNMC and WRAMC, as well as an education mission with the National Capital Consortium Pathology Residency.

Civilian

1. Steven H. Swerdlow, MD, University of Pittsburgh: Immunocytoma, interfollicular small lymphocytic lymphoma and lymphoplasmacytoid lymphoma/immunocytoma.
2. Frank Bauer, MD, St Francis Hospital, Hartford, Conn: Cutaneous follicle center lymphoma.
3. Lynn Levin, MD, WRAIR: Viral etiology of Hodgkin lymphoma.

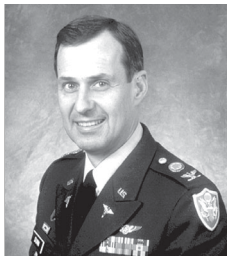
Interdepartmental

1. J Lichy, Department of Cellular Pathology: Semi-quantitative method for detecting tumor markers.
2. AM Nelson, Department of Infectious and Tropical Diseases Pathology.
3. A Levy, Department of Radiologic Pathology.

PROFESSIONAL ACTIVITIES

Official Trips

March 2005, USCAP, San Antonio, Tex, NS Aguilera.



Dale G. Dunn, COL, VC, USA
Chair
Date of Appointment — 1 September 2003

DEPARTMENT OF VETERINARY PATHOLOGY

STAFF

Administrative

Krista S. Spellum, MSG, USA, NCOIC
Teresa G. Cannady, Administrative Officer
Martha A. Koerner, Secretary

LABORATORY ANIMAL MEDICINE DIVISION



Norman D. Wiltshire, LTC, VC, USA
Chief
Date of Appointment – 13 August 2004

STAFF

Medical

(D) David E. Bentzel, MAJ, VC, USA, Deputy Chief, Laboratory Animal Medicine

Scientific

Angela Y. Ward, SGT, USA, NCOIC
(D) Omar A. Feliciano, SPC, Animal Care Specialist
(D) Aaron J. Jackson, SPC, Animal Care Specialist
(A) Chrisaundi N. Butler, SPC, Animal Care Specialist
(A) Angela M. Noble, SPC, Animal Care Specialist
(A) Cheryl C. Legg, PV2, Animal Care Specialist
Rodolfo E. Marenco, QA Technician, ARP
Steven P. McNair, Surgery Technician
Greeley A. Stones, Caretaker Supervisor
Michael B. Cannon, Animal Caretaker
Jerome D. Escoe, Animal Caretaker
Rashaan O. Jackson, Animal Caretaker
James P. Pollock, Animal Caretaker

RESEARCH AND EDUCATION DIVISION



(A) Terrell W. Blanchard, LTC, VC, USA
Chief
Date of Appointment – 25 May 2005

STAFF

Medical

- (D) Duane A. Belote, LTC, VC, USA, Chief, Research Branch
- (D) Terrell W. Blanchard, LTC, VC, USA, Chief, Education Branch
- (D) Mark G. Mense, LTC, VC, USA, Chief, Research and Education Division
- (A) Todd O. Johnson, LTC, VC, USA, Chief, Research Branch
- (A) Bridget S. Lewis, MAJ, VC, USA, Chief, Education Branch

Administrative

Sean Hahn, Administrator, Registry of Toxicologic Pathology for Animals

Scientific/Technical

Henry J. Jenkins, Electron Microscopist and Laboratory Technician
Scott Shaffer, Computer Technology Education Specialist

Residents

- (D) Bridget S. Lewis, MAJ, VC, USA
- (D) Gloria A. Marselas, MAJ, VC, USA
- (D) Thomas J. Steinbach, MAJ, VC, USA
- (D) Kimberly A. Whitten, MAJ, VC, USA
- (D) Derron A. Alves, MAJ, VC, USA
- (D) Jennifer L. Chapman, MAJ, VC, USA
- (A) Neel I. Aziz, CPT, VC, USA (1st year)
- (A) Erica E. Carroll, MAJ, VC, USA (1st year)
- (A) Taylor B. Chance, CPT, VC, USA (1st year)
- (A) William E. Culp, MAJ, VC, USA (1st year)
- (A) Michelle E. Thompson, CPT, VC, USA (1st year)
- (A) William L. Wilkins, MAJ, VC, USA (1st year)

CONSULTATION AND TRAINING DIVISION



Duane A. Belote, LTC, VC, USA (A)
Chief
Date of Appointment – 1 July 2005

STAFF

Medical

- (D) Dana P. Scott, LTC, VC, USA, Chief, Consultation and Training Division
- Greg A. Saturday, MAJ, VC, USA, Chief, Training Branch (PROFIS 9th AML)
- (A) Sarah L. Hale, MAJ, VC, USAR, DIMA
- Michelle L. Fleetwood, DVM, Chief, Consultation Branch
- Thomas P. Lipscomb, DVM, Consultant Pathologist
- F. Yvonne Schulman, DVM, Consultant Pathologist

Administrative

Monique E. Barnes, SGT, USA, Training NCO
Katherine M. Randall, Secretary

Residents

Shelley P. Honnold, MAJ, VC, USA (3rd year)
Louis M. Huzella, MAJ, VC, USA (3rd year)
Mark A. Smith, MAJ, VC, USA (3rd year)
Shannon Wallace, MAJ, VC, USA (3rd year)
Carl I. Shaia, MAJ, VC, USA (2nd year)
Ammon W. Brown, CPT, VC, USA (2nd year)
James R. Dwyer, CPT, VC, USA (2nd year)

IMPACT

- The department program with the greatest impact is the DoD Veterinary Pathology Residency. With few exceptions, the Army veterinary pathologists now on active duty completed their postgraduate training at the AFIP. Army veterinary pathologists are directly involved in critical DoD biomedical research efforts to protect the warfighter. Army veterinary pathologists are also trained in the detection and recognition of foreign animal diseases, many of which are potential biological weapons of great importance to the nation's global war on terrorism. Army veterinary pathologists are the only comparative pathologists in the United States trained to conduct postmortem examinations in the biosafety-level-four (BSL-4) environment. In the face of a worldwide shortage of veterinary pathologists, the Veterinary Pathology Residency Program at the AFIP continues to be the most cost-effective and efficient source of trained pathologists for all DoD research, investigative, and diagnostic pathology needs. Currently, 13 officers are enrolled in the program.
- We are collaborating with the Walter Reed Army Institute of Research, Division of Military Casualty Research, in support of the DoD's wound detection sensor project, with the aim of creating a soldier-portable circuit to detect penetrating impacts. This study is the next step in the development of a passive acoustic sensor to be worn by all combat soldiers, that will provide immediate notification to deployed medical personnel of a penetrating ballistic wound. This research has the potential to increase battlefield casualty survival rates.
- Operation of our laboratory animal facility provided important animal model-based research on human diseases for the AFIP and WRAMC Department of Clinical Investigation. The facility was recertified in 2005 by the Association for Assessment and Accreditation of Laboratory Animal Care International.
- We provided critical diagnostic pathology services for military working animal and other federal animal programs. Members also provided consultation to the National Marine Fisheries Service on several issues involving marine mammal deaths.
- We expanded the Veterinary Systemic Pathology Online program with the assistance of a Department of Education grant and in collaboration with 4 universities. This resource contains case manuscripts with digital photomicrographs of more than 675 disease entities, including the high-consequence zoonotic and foreign animal diseases of importance in the global war on terrorism. All department online programs are freely available to military medical professionals. This resource enables the forward positioning of critical disease information without the need to deploy specialists.
- We conducted a 25-week histopathology ("Wednesday") slide conference (WSC) with 134 participating institutions in 22 countries. This conference has an enormous impact on training programs and hundreds of veterinary pathologists and residents around the world. The WSC has been the signature program of this department for 53 years and is the only one of its kind.
- The WHO Collaborating Center continued to publish the first updates in 25 years of the Histologic Classification of Tumors in Domestic Animals, an important reference used worldwide in diagnostic and research pathology.
- Annual pathology courses provided essential training for military medical research specialists and are core components of the DoD Residency Program. These courses are also unique to the profession.
- We continued our toxicologic histopathology Web conference, the first Web-based course for the Institute and the first Web-based histopathology conference for the profession of

- veterinary pathology.
- We published the *Standardized System of Nomenclature for Diagnostic Criteria*, which is critical to the standardization of diagnostic terminology for veterinary toxicologic pathologists.
 - The department is highly regarded in the United States and abroad for its professionalism and competence, as evidenced by highly favorable media attention this year. Staff members were featured in a Discovery Channel documentary entitled “The Dolphin Murders,” produced by Tigress Production Company, Ltd, of Britain, which began airing in the United States in January 2005. A profile of the department was published in *Legal Medicine* in 2005.

CONSULTATION

The department provides essential diagnostic pathology services for the DoD military working dog program and other federal working animal programs, including the Navy Marine Mammal Program and those conducted by the Customs Service, Border Patrol, and Secret Service. Veterinary pathology consultation is vital to maintaining the health and deployability of these important assets in the global war on terrorism. It is also important in maintaining disease surveillance measures in military communities, which has substantially increased with the threat of bioterrorism. All known potential biological weapons, with the exception of smallpox, are zoonotic diseases. Members of the department also provide consultation and investigative services to the National Marine Fisheries Service on issues of military importance, including Navy sonar systems.

We completed 1,972 consultation cases in 2005, most of which originated from the DoD and other federal agencies. Over 50% of cases reported represent complete autopsies in which wet tissue was received. The majority of these cases are military working dogs and marine mammals, which generate a continuous high demand for histopathological assessment of tissues. The department reviews over 10,000 separate tissue specimens annually. We also performed 218 cytological case examinations, which included tissue aspirates and bone marrow impressions. Five cases received a quality diagnosis code of “4,” representing a major disagreement with the contributor’s diagnosis. Department staff and residents conducted 262 autopsies. Histopathology was performed on almost all autopsy cases. National Zoological Park (NZIP) and Maryland State Diagnostic Laboratory (MDX) autopsy cases are not included with AFIP consultation case totals, since they are assessed by AFIP residents with NZP or MDX staff pathologists.

Cases	Completed
Military	1,074
Army (472)	
Navy (182)	
Air Force (420)	
Federal	41
OFA (41)	
Civilian	369
Interdepartmental	78
No Final Report (NFR)	410
Total	1,972

Autopsies Conducted	
Division of Laboratory Animal Medicine, AFIP	32
NZIP	68
MDX	49
National Institutes of Health	113
Total	262

Appointments

1. Head, WHO/PAHO Collaborating Center for Worldwide Reference on Comparative Oncology, FY Schulman.
2. Working Group, Unusual Marine Mammal Mortality Events, Departments of Commerce and Interior, ML Fleetwood (*emeriti*: DG Dunn, TP Lipscomb, FY Schulman).

Deployments

1. January 2005, Ft Gordon, Ga, South East Regional Veterinary Command Symposium, DG

Dunn.

2. January 2005, San Antonio, Tex, Army Veterinary Services Conference, DP Scott, DA Alves.
March 2005, San Antonio, Tex, Veterinary Corps Strategic Planning Committee, DP Scott.
4. April 2005, Garmisch-Partenkirchen, Germany, International Military Veterinary Medical Symposium, DG Dunn.
5. April 2005, Aberdeen Proving Grounds, Md, Symposium for US Army Veterinary Pathologists, DG Dunn, TW Blanchard, DA Belote, DP Scott, GA Saturday, DA Alves, JL Chapman, BS Lewis, GA Marselas, TJ Steinbach, KA Whitten.
6. April 2005, Plum Island, NY, Foreign Animal Disease Diagnosticians Course, CI Shaia, AW Brown.
7. August 2005, Ft Knox, Ky, HQ USAREC, TW Blanchard.
8. November 2005, San Antonio, Tex, VC Executive Council Meeting, DG Dunn.

EDUCATION

Courses

The department sponsored 3 AFIP courses attended by staff members and DoD Veterinary Pathology Program residents:

1. AFIP/CL Davis Foundation Gross Morbid Anatomy of Domestic Animals
2. AFIP/CL Davis Foundation Descriptive Veterinary Pathology
3. AFIP Pathology of Laboratory Animals

Trainees

- 13 full-time DoD residents
- 10 Visiting Residents
- 8 Visiting Students

Presentations

1. January 2005: Silver Spring, Md, US Army Laboratory Animal Medicine Seminar Series, "Histology for laboratory animal veterinarians," SL Hale.
2. January 2005: San Antonio, Tex, "Food security and laboratory issues," DP Scott.
3. January 2005: Silver Spring, Md, Broad Acres Elementary School Career Day, "What does a veterinarian do?" M Fleetwood.
4. January 2005: Ft Gordon, Ga, South East Regional Veterinary Command, "Army veterinary pathology," DG Dunn.
5. January 2005: Ft Gordon, Ga, South East Regional Veterinary Command, "AFIP online veterinary pathology resources," DG Dunn.
6. February 2005: College Park, Md, Food and Drug Administration Continuing Education Series, "Fundamentals of general and toxicologic pathology," SL Hale.
7. March 2005: Tuskegee, Ala, Tuskegee University School of Veterinary Medicine Annual Symposium, "Career opportunities in the US Army Veterinary Corps," DG Dunn.
8. April 2005: Washington, DC, Library of Congress Staff Visit to AFIP, "DoD veterinary pathology," DG Dunn.
9. April 2005: Garmisch-Partenkirchen, Germany, International Military Veterinary Medical Symposium, "DoD veterinary pathology," DG Dunn.
10. April 2005: Garmisch-Partenkirchen, Germany, International Military Veterinary Medical Symposium, "AFIP online resources," DG Dunn.
11. April 2005: Aberdeen Proving Grounds, Md, Symposium for US Army Veterinary Pathologists, "DoD veterinary pathology issues," DG Dunn.
12. April 2005: Aberdeen Proving Grounds, Md, Symposium for US Army Veterinary Pathologists, "DA selection board process demystified," TW Blanchard.
13. April 2005: Aberdeen Proving Grounds, Md, Symposium for US Army Veterinary Pathologists, "Veterinary Laboratory Europe," DA Belote.
14. April 2005: Gainesville, Fla, Florida Marine Mammal Health Conference II, "Morbilliviral disease of marine mammals," TP Lipscomb.
15. April 2005: Ames, Iowa, Iowa State University College of Veterinary Medicine SCACVP Meeting, "United States Army Veterinary Service," TW Blanchard.
16. May 2005: Seward, Alaska, 36th Annual Conference, International Association for Aquatic Animal Medicine, "Histopathological, immunohistochemical and ultrastructural evidence of herpesviral infection in skin and tonsil of a beluga whale," TW Blanchard.

17. May 2005: Seward, Alaska, International Association for Aquatic Animal Medicine Annual Meeting, "Summary of pathological findings from subsistence hunting of the Pacific walrus (*Odobenus rosmarus divergens*) in Alaska from 1995-2004," M Fleetwood.
18. June 2005: Washington, DC, Society of Toxicologic Pathology Annual Symposium, "Fundamentals of general pathology," SL Hale.
19. June 2005: Washington, DC, 14th Annual Descriptive Veterinary Pathology Course, "Histologic case descriptions," M Fleetwood.
20. June 2005: Washington, DC, 14th Annual Descriptive Veterinary Pathology Course, "Histologic case descriptions," DG Dunn.
21. June 2005: Washington, DC, 14th Annual Descriptive Veterinary Pathology Course, "Histologic case descriptions," DA Belote.
22. June 2005: Washington, DC, 14th Annual Descriptive Veterinary Pathology Course, "Histologic case descriptions," GA Saturday.
23. June 2005: Washington, DC, 14th Annual Descriptive Veterinary Pathology Course, "Histologic case descriptions," TW Blanchard.
24. June 2005: Washington, DC, 14th Annual Descriptive Veterinary Pathology Course, "Histologic case descriptions," DP Scott.
25. July 2005: Washington, DC, National Youth Leadership Foundation Career Day, "Careers in veterinary pathology," M Fleetwood.
26. July 2005: Padova, Italy, ECVP/ESVP Summer School in Veterinary Pathology, "Online veterinary pathology training," TW Blanchard.
27. September 2005: Ames, Iowa, ACVP Council Meeting, "AFIP Base Realignment and Closure update," DG Dunn.
28. October 2005: Paris, France, European Association for Aquatic Mammals, Dolphin Reproduction Workshop, "Causes of abortion and perinatal mortality in dolphins," TP Lipscomb.
29. October 2005: Cobleskill, NY, 11th Annual Northeast Veterinary Pathology Conference, "Granular cell tumor in Labrador retriever," JR Dwyer.
30. October 2005: Cobleskill NY, 11th Annual Northeast Veterinary Pathology Conference, "Coccidioidomycosis in a bottlenose dolphin," CI Shaia.
31. October 2005: Cobleskill NY, 11th Annual Northeastern Veterinary Pathology Conference, "Suprasellar germ cell tumor in an Airedale terrier," AW Brown.
32. November 2005: Knoxville, Tenn, Student Chapter of the American College of Veterinary Pathologists, "An overview of marine mammal pathology," M Fleetwood.
33. December 2005: Boston, Mass, 56th Annual Meeting of the ACVP, Training Coordinators Meeting, "Veterinary systemic pathology online," BS Lewis.
34. December 2005: Boston, Mass, 56th Annual Meeting of the ACVP, "2004 ACVP Exam, anatomic pathology, microscopic slide review," DG Dunn.
35. December 2005: Boston, Mass, 56th Annual Meeting of the American College of Veterinary Pathologists, Neuropathology Mystery Slide Seminar, "Lafora's disease in a fennec fox," SP Honnold.
36. December 2005: Genova, Italy, Italian Veterinary Oncology Meeting, "WHO International Histological Classification of Tumors of Domestic Animals: what it is and why we need it," FY Schulman.

RESEARCH

Journal Articles

1. Chapman J, Mense M, Dubey JP. Clinical muscular sarcocystosis in a dog. *J Parasitol.* 2005;91:187-90.
2. Cowart J, Schulman FY, Mena H. Low-grade glial tumor with features of astroblastoma in a dog. *Vet Pathol.* 2005;42:366-9.
3. Dunn DG. A profile of veterinary pathology at AFIP. *Legal Med.* 2005;51-5.
4. Estep JS, Baumgartner RE, Townsend F, Pabst DA, McLellan WA, Friedlaender A, Dunn DG, Lipscomb TP. Malignant seminoma with metastasis, Sertoli cell tumor, and pheochromocytoma in a spotted dolphin (*Stenella frontalis*) and malignant seminoma with metastasis in a bottlenose dolphin (*Tursiops truncatus*). *Vet Pathol.* 2005;42:357-9.
5. Fuji RN, Patton KM, Steinbach TJ, Schulman FY, Bradley GA, Brown TA, Wilson EA, Summers BA. Feline systemic reactive angioendotheliomatosis: eight cases and literature review. *Vet Pathol.* 2005;42:608-17.

6. Honnold SP, Braun R, Scott DP, Sreekumar C, Dubey JP. Toxoplasmosis in a Hawaiian monk seal (*Monachus schauinslandi*). *J Parasitol.* 2005;91:695-7.
7. Saturday GA, Lasota J, Frost D, Brasky KB, Hubbard G, Miettinen M. KIT-positive gastrointestinal stromal tumor in a 22-year-old male chimpanzee (*Pan troglodytes*). *Vet Pathol.* 2005;42:362-5.
8. Schulman FY, Lipscomb TP, Atkin TJ. Canine cutaneous clear cell adnexal carcinoma: histopathology, immunohistochemistry and biologic behavior of 26 cases. *J Vet Diagn Invest.* 2005;17:403-11.
9. Silvagni PA, Lowenstine LJ, Spraker T, Lipscomb TP, Gulland FM. Pathology of domoic acid toxicity in California sea lions (*Zalophus californianus*). *Vet Pathol.* 2005;42:184-91.

Abstracts

1. Huzella LM, Ide A, Steinbach TJ, Blanchard TW, Lipscomb TP, Schulman FY. Osteosarcoma in a malignant pilomatrixoma (82). *Vet Pathol.* 2005;42:700.
2. Jacobson E, Stacy B, Berry KH, Huzella LM, Kalasinsky VF, Fleetwood ML, Mense MG. Oxalosis in wild desert tortoises. 30th Annual Meeting and Symposium, Desert Tortoise Council, Tucson, Ariz, February 18-21, 2005.
3. Lipscomb TP. Causes of abortion and perinatal mortality in dolphins. Proceedings of the Dolphin Reproduction Workshop, European Association for Aquatic Mammals, Paris, France, October 2005.
4. Lipscomb TP. Morbilliviral disease of marine mammals. Proceedings of the Florida Marine Mammal Health Conference II, Gainesville, Fla, April 2005.
5. Lipscomb TP, Berman M, Cowan D. Angiomatosis in long-beaked common dolphins (*Delphinus capensis*) from the central California coast. Proceedings of the 16th Biennial Conference on the Biology of Marine Mammals, San Diego, Calif, December 2005.
6. McArthur MJ, Barnhart KF, Martino MA, Buchl SJ, Chapman JL, Belote DA, Baze W. Metastatic anaplastic sarcoma in a fifteen-year-old male chimpanzee (51). *Vet Pathol.* 2005;42:692.
7. Norman SA, Norberg B, Barre L, Raverty S, Gaydos JK, Ketten D, Fleetwood M, McLellan WA, Cox T, Hanson B, Jeffries S. Multidisciplinary investigation of stranded harbor porpoises (*Phocoena phocoena*) in Washington State with an assessment of acoustic trauma as a contributory factor. Proceedings of the 36th Annual Conference of the International Association for Aquatic Animal Medicine, Seward, Alaska, May 2005.
8. Petras JM, Van Gessel Y, Blanchard TW, Gettayacamin M, Miller RS. Artesunate administered intravenously to rhesus monkeys (*Macaca mulatta*): a neurology and neuropathology study. I. The medulla oblongata, pons, and cerebellum. Annual Meeting of the American Society of Tropical Medicine and Hygiene, Washington, DC, December 2005.
9. Petras JM, Van Gessel Y, Blanchard TW, Gettayacamin M, Miller RS. Artesunate administered intravenously to rhesus monkeys (*Macaca mulatta*): a neurology and neuropathology study. III. Brainstem auditory and visual systems nuclear groups. Annual Meeting of the American Society of Tropical Medicine and Hygiene, Washington, DC, December 2005.
10. Petras JM, Van Gessel Y, Blanchard TW, Gettayacamin M, Miller RS. Artesunate administered intravenously to rhesus monkeys (*Macaca mulatta*): a neurology and neuropathology study. I. The medulla oblongata, pons, and cerebellum. Annual Meeting of the American Society of Tropical Medicine and Hygiene, Washington, DC, December 2005.
11. Raverty SA, Braun RC, Kashinsky L, Antonelis B, Spraker T, Fleetwood M. An overview of pathological diagnoses from Hawaiian monk seals (*Monachus schauinslandi*) examined between 1989 and 2004. Proceedings of the 36th Annual Conference of the International Association for Aquatic Animal Medicine, Seward, Alaska, May 2005.
12. Raverty SA, Norman SA, Norberg B, Barre L, Gaydos J, Ketten D, Cramer S, Fleetwood M, McLellan WA, Pabst DA, Cox T, Hanson B, Jeffries S, Lambourn D. Diagnostic findings in harbor porpoises (*Phocoena phocoena*) stranded in Washington State between 2 May and 2 June 2003, coincident with the naval USS Shoup sonar deployment. Proceedings of the 36th Annual Conference of the International Association for Aquatic Animal Medicine, Seward, Alaska, May 2005.
13. Schulman FY. WHO International Histological Classification of Tumors of Domestic Animals: what it is and why we need it. Proceedings of the Italian Veterinary Oncology Meeting, 2005.
14. Smith M, Saturday G, Williams B, Gannon F. Parosteal osteosarcoma in a ferret (66). *Vet Pathol.* 2005;42:696.

15. Summary of pathological findings from subsistence hunting of the Pacific walrus (*Odobenus rosmarus divergens*) in Alaska from 1995-2004. Proceedings of the 36th Annual Conference of the International Association for Aquatic Animal Medicine, Seward, Alaska, May 2005.
16. Wallace S, Belote D, Blanchard T, Gilbertson S. Hepatic angiomatosis in a dog (66). *Vet Pathol.* 2005;42:698.
17. Wallace S, Blanchard TW, Dunn JL, Merigo C, Hartley D. Histopathological, immunohistochemical and ultrastructural evidence of herpesviral infection in skin and tonsil of a beluga whale. Poster Presentation. Annual Conference of the International Association for Aquatic Animal Medicine, Seward, Alaska, May 2005.

Projects

1. Effects of BMP-2 and alendronate sodium on posterolateral fusion maturation in a rabbit model.
2. Post-West Nile virus outbreak red tailed hawk necropsy series.
3. Determination of surface acoustic signatures from high velocity impacts in swine.
4. Indicators of human disease from Persian Gulf War service: a study of military working dogs deployed in Operations Desert Shield/Storm.
5. Methods to protect against various infectious diseases at Biosafety Level 2 and 3.
6. Web-based distance learning in veterinary pathology.
7. Development of an International Tissue and Tumor Repository for chronic arseniasis.
8. Progressive bone lesions in the sperm whale and chronic effects of deep diving.
9. Testicular neoplasia in dolphins.
10. Feline subependymal giant cell astrocytomas.
11. Causes of marine mammal disease.
12. Cardiovascular disease: arterial responses to injury, atherosclerosis, therapies for restenosis following stent placement.
13. Pathological findings in subsistence hunted Pacific walrus.
14. Angiomatosis in long-beaked common dolphins.
15. Osteosarcoma in a malignant pilomatricoma.
16. Gammaherpesvirus infection in elephant seals.
17. Genital herpesvirus infection in a Pacific white-sided dolphin.
18. Causes of abortion and perinatal mortality in dolphins.
19. Feline pathology gross Kodachrome™ study set.
20. Lafora body disease in fennec fox.
21. Ectopic adrenocortical tumors in ferrets.
22. Forensic methods of characterizing watercraft components from watercraft-induced wounds in Florida manatees.
23. Histopathologic effects of chronic arsenic exposure in Wistar rats.
24. Experimental measurements of blast trauma.
25. Effect of BMP-2 and alendronate sodium on spinal fusion in a rabbit model.
26. Study set for AAZV 12th Annual Zoo and Wildlife Pathology Workshop.
27. Orthopedic research.
28. Brucellosis in nonhuman primates.
29. Anthrax.
30. Pathological findings in Hawaiian monk seals.
31. Marine mammal study set.
32. Correlation between morbilliviral titres, pathological findings and molecular diagnostics in cetaceans.
33. Immunohistochemistry and semi-nested RT-PCR for diagnosis of morbilliviral diseases in seals.
34. CNS lesions of domoic acid in marine mammals.

Research Impacts

- Determination of surface acoustic signatures from high velocity impacts in swine: This protocol is a step in the development of a passive acoustic sensor to be worn by all combat soldiers that will provide immediate notification to the soldier medic of a penetrating

ballistic wounding event.

- Military working dog Persian Gulf veterans as sentinels for human disease: Department staff determined there is no significant difference in the prevalence, histogenesis, or systemic distribution of neoplasia between deployed and nondeployed dogs. A manuscript is being developed for submission to *Environmental Health Perspectives* to report these findings.
- The effects of BMP-2 and alendronate sodium on posterolateral fusion maturation in a rabbit model: Investigators determined that local placement of bone morphogenetic protein-2 at spinal fusion sites is likely to promote stable fusion in osteoporosis patients taking alendronate sodium, which has been shown to inhibit fusion. The finding suggests physicians can concurrently treat osteoporosis and promote beneficial spinal fusion.

Collaborators

Military

1. DoD Military Working Dog Veterinary Service
2. Walter Reed Army Institute of Research
3. Walter Reed Army Medical Center
4. US Army Research Institute of Infectious Diseases

Civilian

1. National Zoological Park, Washington, DC
2. Maryland State Diagnostic Laboratory, Frederick, Md
3. National Marine Fisheries Service
4. US Fish and Wildlife Service
5. US Food and Drug Administration
6. National Institutes of Health, Center for Environmental Health
7. US Department of Agriculture, Agriculture Research Service
8. Marine Mammal Center, Sausalito, Calif
9. University of Texas School of Public Health
10. Virginia Aquarium and Marine Science Museum
11. C.L. Davis DVM Foundation
12. Society of Toxicologic Pathology
13. Uniformed Services University of the Health Sciences
14. University of Pennsylvania School of Veterinary Medicine, New Bolton, Penn
15. New Jersey Marine Mammal Stranding Center, Brigantine, NJ
16. Iowa State University
17. Louisiana State University
18. Washington State University
19. University of Georgia
20. European Association for Aquatic Animal Medicine
21. Harbor Branch Oceanographic Institute, Ft Pierce, Fla
22. Santa Barbara Museum of Natural History, Santa Barbara, Calif
23. Tufts University, School of Veterinary Medicine, Wildlife Clinic
24. Southwest National Primate Research Center
25. The National Aquarium, Baltimore, Md

PROFESSIONAL ACTIVITIES

Official Trips

1. January 2005, South East Regional Veterinary Command Symposium, Ft Gordon, Ga, DG Dunn (AFIP).
2. January 2005, Annual Veterinary Services Conference, San Antonio, Tex, DP Scott, DA Alves (VETCOM).
3. March 2005, Veterinary Corps Strategic Planning Committee, San Antonio, Tex, DP Scott (OTSG).
4. March 2005, 44th Annual Society of Toxicology Meeting, New Orleans, La, MG Mense (RTPA).
5. March 2005, Tuskegee University School of Veterinary Medicine Annual Symposium, Tuskegee, Ala, DG Dunn (OTSG).
6. April 2005, International Military Veterinary Medical Symposium, Garmisch-

- Partenkirchen, Germany, DG Dunn (OTSG).
7. April 2005, Symposium for US Army Veterinary Pathologists, Aberdeen Proving Grounds, Md, staff and residents (LOCAL).
 8. April 2005, Foreign Animal Disease Diagnosticians Course, Plum Island, NY, AW Brown, CI Shaia (AMEDD).
 9. April 2005, Iowa State University, Ames, Iowa, TW Blanchard (DOE FIPSE GRANT).
 10. May 2005, Florida Fish and Wildlife Conservation Commission Fish and Wildlife Research Institute and Marine Mammal Pathobiology Lab, St Petersburg, Fla, TW Blanchard (State of Florida).
 11. May 2005, 36th Annual Conference, International Association for Aquatic Animal Medicine, Seward, Alaska, TW Blanchard (AFIP).
 12. May 2005, ACLAM Conference, Asheville, NC, ND Wiltshire (AFIP).
 13. May 2005, International Association of Aquatic Animal Medicine Annual Meeting, Seward, Alaska, M Fleetwood, TW Blanchard (AFIP/FPMI).
 14. June 2005, Chair, Grant Review Panel for Florida's Protect Wild Dolphins Program, Ft Pierce, Fla, TP Lipscomb (Harbor Branch Oceanographic Institute).
 15. June 2005, Society of Toxicologic Pathology Annual Meeting, Washington, DC, S Hahn, S Shaffer (RTPA).
 16. June 2005, US Army War College, DDE Class of 2006 First Resident Course, Carlisle, Penn, TW Blanchard (AFIP).
 17. June 2005, ACVP Examination Committee Meeting, Ft Collins, Colo, DG Dunn (ACVP).
 18. July 2005, ECVP/ESVP Summer School in Veterinary Pathology, Padova, Italy, TW Blanchard (DOE FIPSE GRANT).
 19. August 2005, HQ USAREC, Ft Knox, Ky, TW Blanchard (HQ USAREC).
 20. August 2005, ILE (CGSC) Phase I, Ft Dix, NJ, GA Saturday (DAP).
 21. August 2005, Annual Meeting of the Working Group on Marine Mammal Unusual Mortality Events, St Petersburg, Fla, M Fleetwood (NMFS).
 22. September 2005, ACVP Examination Committee Meeting, Ames, Iowa, DG Dunn (ACVP).
 23. September 2005, European Society of Veterinary Pathology Annual Meeting, Naples, Italy, S Hahn, S Shaffer (Dept of Education FIPSE GRANT-ARP).
 24. September 2005, ACVP Board Examination, Ames, Iowa, DA Alves, JL Chapman, BS Lewis, GA Marselas, TJ Steinbach, KA Whitten (AFIP).
 25. October 2005, Dolphin Reproduction Workshop, Paris, France, TP Lipscomb (European Association for Aquatic Mammals).
 26. October 2005, Prescott Marine Mammal Rescue Assistance Program Grant Review, Seattle, Wash, M Fleetwood (NMFS).
 27. November 2005, Marine Mammal Pathology Workshop, Knoxville, Tenn, M Fleetwood (NMFS).
 28. November 2005, CL Davis Toxicologic Pathology, Hershey, Penn, DA Belote, SP Honnold, L Huzella, MA Smith, SM Wallace (LOCAL).
 29. November 2005, APV/AALAS Conferences, St Louis, Mo, ND Wiltshire (AFIP).
 30. November 2005, 48th Annual Meeting, American Association of Veterinary Laboratory Diagnosticians, Hershey, Penn, DA Belote.
 31. December 2005, 56th Annual ACVP Meeting, Boston, Mass, DG Dunn, TW Blanchard, TO Johnson, BS Lewis, GA Saturday, TP Lipscomb, FY Schulman, SP Honnold, L Huzella, M Smith, SM Wallace (AFIP).
 32. December 2005, 56th Annual ACVP Meeting, Boston, Mass, S Hahn, S Shaffer (Registry of Veterinary Pathology).
 33. December 2005, VC Executive Council Meeting, San Antonio, Tex, DG Dunn (OTSG).
 34. December 2005, Italian Veterinary Seminar on Oncology, Genoa, Italy, FY Schulman (SCIVAC).

Manuscripts Reviewed

1. *Veterinary Pathology*, TP Lipscomb.
2. *Journal of the American Veterinary Medical Association*, Schulman FY.
3. *Journal of the American Animal Hospital Association*, Schulman FY.

Editorial Boards

1. *Journal of the American Animal Hospital Association*, FY Schulman.
2. Editor, WHO International Histological Classification of Tumors of Domestic Animals, FY Schulman.



Florabel G. Mullick, MD, ScD (Hon), FCAP, SES
Chair
Date of Appointment — 27 June 1996

DEPARTMENT OF ENVIRONMENTAL AND INFECTIOUS DISEASE SCIENCES

The Department of Environmental and Infectious Disease Sciences was established in 2004 by merging the Department of Environmental and Toxicologic Pathology with the Department of Infectious and Parasitic Diseases Pathology, bringing together experts in infectious and tropical diseases, microbiology, molecular pathobiology, AIDS and emerging infections, environmental pathology, environmental toxicology, and biophysical toxicology. The department conducts consultation, education, and research in global diseases; studies environmental factors causing negative health effects, and organisms that cause a specific illness; and studies threats and diseases that affect our deployed soldiers and their health upon return. The creation of the INTOX Data Center consolidates all our military-related databases, facilitating follow-up of war-related diseases in military personnel.

ORGANIZATION

- Office of the Chair
- Division of Environmental Pathology, Michael R. Lewin-Smith, MD, Chief
- Division of Environmental Toxicology, Victor F. Kalasinsky, PhD, Chief
- Division of Biophysical Toxicology, Jose A. Centeno, PhD, Chief
- Division of Infectious and Tropical Diseases Pathology, Peter L. McEvoy, COL, MC, USA, Chief
- Division of Microbiology, Robert Crawford, PhD, Chief
- Division of Molecular Pathobiology, Shyh-Ching Lo, MD, PhD, Chief

OFFICE OF THE CHAIR

STAFF

Medical

Florabel G. Mullick, MD, ScD, FCAP, Chair
Douglas J. Wear, MD, Associate Chair for Research and Education
Linda Murakata, Lt Col, USAF, MC, Staff Pathologist

Administrative

Ridgely L. Rabold, AAS, Department Administrator, PGI Program Manager
Kim Knight, Administrative Officer
Ana Erica Revelo, Administrative Assistant

CONSULTATION

- Dr. Mullick assisted in the consultation, education and research missions of the department by signing 850 cases, publishing 52 peer-reviewed articles, and presenting 5 lectures. For further activities, see the report for Principal Deputy Director.
- Dr. Murakata assisted in providing a total of 3,210 departmental consultations that included intramural consultations, and medical/pathologic consultative support in the divisions of Environmental Pathology, Environmental Toxicology, Chemical Microscopy, and Biophysical Toxicology. In addition, Dr. Murakata assisted in submitting and/or consulted on over 2,866 specimens sent for inclusion in the AFIP military-related registries for former POWs,

Vietnam War/Agent Orange, Kuwait/Persian Gulf War, ionizing radiation, Afghanistan and Operation Enduring Freedom, Operation Iraqi Freedom, and the Leishmania Registry.

- Dr. Murakata also performed an in-depth evaluation and consultation for the VA involving a claims case relating to Agent Orange, analyzed and signed out 7 cases involving tissue reactions to drugs, and signed out 322 cases with the Division of Chemical Pathology.

RESEARCH

Journal Articles

1. Baydur A, Koss MN, Sharma OP, Dalglish GE, Nguyen DV, Mullick FG, Murakata LA, Centeno JA. Microscopic pulmonary embolization of an indwelling central venous catheter with granulomatous inflammatory response. *Eur Respir J*. 2005;26:351-2.
2. Wear DJ, Casey BL, reviewers. *JAMA*. 2005;293:1801. Review of: Glynn I, Glynn J. *The Life and Death of Smallpox*.
3. Lo SC, Wang RY, Grandinetti T, Zou N, Hayes MM, Shih JW, Wear DJ. Mycoplasma penetrans infections and seroconversion in patients with AIDS: identification of major mycoplasmal antigens targeted by host antibody response. *FEMS Immunol Med Microbiol*. 2005;44:277-82.

Abstracts

1. Murakata LA, Lewin-Smith MR, Specht CS, Kalasinsky VF, McEvoy P, Vinh TN, Rabin L, Mullick FG. Characterization of embolization microsphere plastic in vitro and in human tissue sections by light microscopy and infrared microspectroscopy. *Arch Pathol Lab Med*. 2005;129:557.
2. Specht CS, Lewin-Smith MR, Murakata LA, Rushing EJ, Sandberg GD, Kalasinsky VF, Moroz AL, Mullick FG. Central nervous system neoplasia in 1990-1991 Gulf War veterans. *J Neuropathol Exp Neurol*. 2005;64:459.

Book Chapter

Centeno JA, Tchounwou PB, Patlolla AK, Mullick FG, Murakata LA, Meza E, Gibb H, Longfellow D, Yedjou CG. Environmental pathology and health effects of arsenic poisoning: a critical review. In: *Managing Arsenic in the Environment: From Soil to Human Health*. Sweden: CSIRO Publishing; 2005.

Projects

Interesting cases in environmental and toxicologic pathology: 100 cases, with clinical histories, discussions, glass slides: LA Murakata, MR Lewin-Smith.

DIVISION OF ENVIRONMENTAL PATHOLOGY



Michael R. Lewin-Smith, MD
Chief
Date of Appointment – 1 November 2001

STAFF

Medical

Michael R. Lewin-Smith, MD, Chief

Administrative

Albin L. Moroz, MS, Analyst/Programmer

(A) Tain-Lin Huang, MS, ME, Programmer, Level 2

(A) Mary L. McDaniel, Medical Research Technician

IMPACT

- The division conducts consultation, education, and research in environmental toxicology, and environmental, drug-induced, and radiation pathology. We study ways to develop and

apply toxicological techniques for analyzing human and animal tissue to determine causes of injury and disease. Following the retirement of Frank B. Johnson, MD, SES in May 2004, the pathology consultation work of Dr. Johnson's division was transferred to the Division of Environmental Pathology.

- The division provides medical/pathology support to the divisions of Environmental Toxicology, Chemical Microscopy, and Biophysical Toxicology within the newly formed Department of Environmental and Infectious Disease Sciences, and provides intramural consultative support to the other departments of the AFIP.
- The overwhelming majority of the our work in 2005 involved military-related consultation, education, and research. Consultative activity involved support of military pathologists deployed overseas, and support of military pathologists and clinicians in the United States. The bulk of the remaining consultations were performed for VA patients whose specimens have been submitted for inclusion in the AFIP's military-related registries maintained by the division. Consultation reports were issued for these patients when requested, in collaboration with the relevant expert departments of the AFIP.
- The division maintains several registries of anatomic pathology material from military and militarily-related cohorts, including former POWs, Vietnam War/Agent Orange veterans, 1990-1991 Kuwait/Persian Gulf War veterans, and ionizing radiation veterans. In 2003, new registries for military personnel deployed to Iraq and Afghanistan were initiated and continued to grow during 2005. In 2004 an AFIP registry for leishmaniasis was developed in collaboration with the Division of Infectious and Tropical Diseases Pathology, which also added cases in 2005.
- The division supports the VA claims process. Division staff processed 2 cases in 2005 relating to Agent Orange.
- In 2005, division staff presented lectures at the NIH, Bethesda, Md, and The George Washington University Medical Center, Washington, DC, and supported a presentation by staff from WRAMC.
- Dr. Lewin-Smith occupied the position of Chair, AFIP Research Committee, and evaluated all new AFIP research protocols submitted, worked up research-related policy issues, and provided assistance for several research-related enquiries, including the AFIP evaluation published by the Library of Congress.
- The division initiated one new research protocol in 2005 and expanded the scope of a second protocol by initiating a collaboration with the United States Center for Health Promotion and Preventive Medicine.
- A poster reporting on central nervous system neoplasms among veterans of the 1990-1991 Gulf War was presented at a national meeting of neuropathologists in 2005.
- AL Moroz maintained our computerized databases, and provided computer programming and analysis supporting activities outside the division, including writing a research protocol tracking program that monitors and documents research activities for the entire Institute, and a training management program to document personnel training and activities within the scope of the Institutional Animal Care and Use Committee (IACUC), and tracking safety training for the Institute. The program was praised during a recent Veterinary Research accreditation inspection.
- AL Moroz wrote a specimen management system for the Depleted Uranium Registry (Division of Biophysical Toxicology) and consolidated other registries and special studies within the Department of Environmental and Infectious Disease Sciences into the International Toxicology Datacenter.

CONSULTATION

- In addition to division staff, Drs. Mullick, Murakata, and Kalasinsky signed out cases for the Division of Environmental Pathology in 2005.
- The division maintains the Registry for Former POWs, which contains histopathologic specimens dating back to 1945. The registry was established in 1980 in a VA circular. Since then, 28,583 accessions from 14,559 former POWs have been received at the AFIP. During 2005, 881 new POW accessions were received, and 884 were finalized, including those with no report required. The division received 190 fewer POW accessions in 2005 than in 2004, most likely due to declining numbers of surviving former POWs from World War II.
- The division maintains the Kuwait/Persian Gulf Registry for pathology specimens from veterans of the 1990-1991 Persian Gulf War. This registry is supported by funding from the DoD, and contains pathologic material contributed by Military Medical Treatment Facilities and VA Medical Centers. During 2005, 1,678 new Kuwait/Persian Gulf Registry accessions

were received, and 1,553 accessions were finalized, including 1,372 with no report required. The division received 75 more Kuwait/Persian Gulf accessions in 2005 than in 2004. The AFIP Kuwait/Persian Gulf Registry contained 13,248 accessioned cases from 8,992 verified 1990-1991 Gulf War military veterans on December 31, 2005. In addition, there were 1,445 accessioned cases from 999 veterans who had been in the theater of operations, but not during the period August 1, 1990 to July 31, 1991, and 5,435 accessioned cases from 4,251 patients whose status could not be verified, but had been received as Kuwait/Persian Gulf Registry cases.

- A special study conducted in the 1980s for Vietnam War veterans formed the basis for the AFIP Registry for Agent Orange, which is maintained by the division. Additional cases have been received since then. Autopsy contributions, received mainly from VA medical centers, are periodically received for dioxin evaluation, which is performed as part of a research protocol by the Division of Environmental Toxicology. In 2005, 307 new Agent Orange Registry accessions were received and 301 were finalized, including 253 with no report required. The division received 106 more Agent Orange Registry cases in 2005 than 2004. There were 9,421 accessioned cases from 7,775 patients in the Agent Orange database on December 31, 2005.
- For the 3 registries listed above, the division received a combined total of 2,866 new accessions in 2005. This is an increase of 11 accessions compared to 2004. In addition, the division maintains 3 registries related to the Global War on Terrorism.
- The Leishmaniasis Registry is disease-specific. It was established in collaboration with the Division of Infectious and Tropical Diseases Pathology to monitor leishmaniasis cases from Southwest Asia following Operation Nobel Eagle (ONE), Operation Enduring Freedom (OEF), and Operation Iraqi Freedom (OIF). It includes patients from Afghanistan, Iraq, and countries in the Arabian Peninsula. At the end of 2005 there were 1,320 accessions from 1,088 patients in the registry.
- The Afghanistan Service Registry is a geographically based registry for patients who were in the ONE/OEF theater of operations. At the end of 2005 there are 21 accessions from 21 patients in the registry.
- The Operation Iraqi Freedom Registry is a geographically based registry for patients who were in the OIF theater of operations. At the end of 2005 there were 645 accessions from 562 patients in the registry.
- There were 2 new accessions from 2 patients for the Ionizing Radiation/Radiation Biology Registry in 2005.
- The division processed 2 VA claims cases in 2005.
- The Department of Environmental and Infectious Disease Sciences has developed the International INTOX database, which contained several thousand cases and was reorganized in 2001. The INTOX database was renamed the INTOX Data Center and is now an umbrella for several databases, which have been separated to more easily identify related cases. Division staff have been actively involved with the development of the new data center and in redesigning the computerized records for the Tissue Reaction to Drugs (TRD) Registry. The registries for Agent Orange, Former POWs, Kuwait/Persian Gulf and Radiation Pathology are databases in the INTOX Data Center. Division staff have also worked on the material for the Breast Explant Registry, Depleted Uranium Registry, and Chronic Arseniasis Registry. A new database for environmental agents has been created for cases previously included in the TRD registry, but which are not recognized as conventional drugs, diagnostic or therapeutic agents or alternative therapies. The reorganization continued in 2005 to improve the utility of the data for future research and for collaborative work, particularly with military and other government agencies.

Cases	Completed
Military	66
Army (59)	
Navy (3)	
Air Force (4)	
Federal (VA)	2,985
Civilian	83
Interdepartmental	76
Total	3,210

MR Lewin-Smith co-signed 14 cases with the Division of Chemical Microscopy (12 Army, 2 VA) in 2005, and reviewed 234 quality assurance cases for the divisions of Environmental Pathology, Environmental Toxicology, and Chemical Microscopy.

EDUCATION

Faculty Appointments

1. Assistant Clinical Professor of Pathology, The George Washington University, MR Lewin-Smith.
2. Adjunct Assistant Professor, Georgetown University, MR Lewin-Smith.

Presentations

1. May 2005: Bethesda, Md, Laboratory of Pathology, National Cancer Institute, NIH, "Characterization of unknown materials in histopathology specimens," MR Lewin-Smith.
2. November 2005: Washington, DC, George Washington University Medical Center, "Characterization of iatrogenic materials in histopathology specimens," MR Lewin-Smith.

RESEARCH

Abstracts

1. Murakata LA, Lewin-Smith MR, Specht CS, Kalasinsky VF, McEvoy P, Vinh TN, Rabin L, Mullick FG. Characterization of embolization microsphere plastic in vitro and in human tissue sections by light microscopy and infrared microspectroscopy. *Arch Pathol Lab Med.* 2005;129:557.
2. Specht CS, Lewin-Smith MR, Murakata LA, Rushing EJ, Sandberg GD, Kalasinsky VF, Moroz AL, Mullick FG. Central nervous system neoplasia in 1990-1991 Gulf War veterans. *J Neuropathol Exp Neurol.* 2005;64:459.

Projects

1. A histopathologic study of hematologic specimens from Persian Gulf War military veterans. PI: MR Lewin-Smith.
2. The timing of hepatitis C seroconversion in a cohort of U.S. military Gulf War veterans (GWVs). PI: MR Lewin-Smith.
3. A histopathologic study of liver specimens from Persian Gulf War military veterans. PI: MR Lewin-Smith.
4. Pathology of the lung in a cohort of former prisoners of war. PI: MR Lewin-Smith.
5. A review of gynecologic histopathology in a group of Gulf War veterans. PI: MR Lewin-Smith.
6. Update of skin pathology in Gulf War veterans. PI: MR Lewin-Smith.
7. Birefringence of helminths in hematoxylin and eosin-stained human tissue sections. PI: MR Lewin-Smith.
8. A review of the neuromuscular pathology of Gulf War veterans. PI: CS Specht.
9. Identification of microembolization beads in pathology specimens. LA Murakata, CS Specht, MR Lewin-Smith, et al.

Collaborators

Military

1. KC Holtzmuller, WRAMC: Hepatic disease in U.S. military Gulf War veterans (GWVs).
2. KL Maggio, WRAMC: Identification of material from blast wounds in U.S. military personnel.

Civilian

C Watkins and S Stofko, Prisoner of War Information System: Pathology of the lung in former prisoners of war.

Interdepartmental

1. E Rushing: Neuromuscular pathology of Gulf War veterans.
2. L Rabin: Hepatic disease in U.S. military Gulf War veterans.
3. SL Abbondanzo: A histopathologic study of hematology specimens from Persian Gulf War military veterans.

PROFESSIONAL ACTIVITIES

Official Trips

June 2005, Arlington, Va, 2005 American Association of Neuropathologists Annual Meeting, CS Specht.

DIVISION OF ENVIRONMENTAL TOXICOLOGY



Victor F. Kalasinsky, PhD

Chief

Date of Appointment – 25 September 1989

STAFF

Scientific

Victor F. Kalasinsky, PhD, Chief

Natalya Merezhinskaya, PhD

(D) Thuy T. Luong, MS, Laboratory Manager

Karen Pizzolato, BS, Laboratory Technician

Esta Y. Tamanaha, BS, Laboratory Technician

(D) Susanna Tsukerman, BS, Laboratory Technician

Albin L. Moroz, MS, Computer Program Analyst

Jesse Tristan, BS, Computer Applications Specialist

Administrative

Kim M. Knight, Administrative Officer

IMPACT

- Work continued on discriminating among different genera of microorganisms using various spectroscopic methods, including microspectroscopy and chemical imaging, in collaboration with the Division of Microbiology and Aberdeen Proving Ground.
- White powders suspected of being biological agents and other unknowns were identified using infrared and Raman spectroscopy and scanning electron microscopy with energy-dispersive x-ray analysis.
- Supported USACHPPM, WRAMC, and the OAFME by analyzing specimens from patients serving in Iraq.
- Work continued on improving detection limits for insect repellents sampled from transdermal sweat patches.
- The AFIP-DoD-GEIS Directory of Public Health Laboratory Services was available online. Monthly newsletters were prepared highlighting important news related to emerging infections, and a “flat file” of pertinent data on CD was prepared for distribution.
- Worked with USACHPPM to add military environmental laboratory capabilities to the online database in a format compatible with the Environmental Protection Agency.
- Assisted military crime investigators by identifying materials found in specimens.
- Provided laboratory testing of urine samples collected from patients occupationally exposed to explosives.
- Began working on a program using monoclonal antibodies for immunohistological identification of infectious agents.

CONSULTATION

By using gas chromatography, mass spectrometry, liquid chromatography, Fourier transform infrared and Raman spectrometry, and scanning electron microscopy with energy-dispersive

x-ray analysis, it was possible to identify or characterize unknown chemical substances in 33 cases. These included pesticides, plastics, therapeutic drugs, and cases of dioxin analysis in patients thought to have been exposed to Agent Orange in Vietnam. Other cases included serologic tests on Gulf War veterans.

Cases

Military	721
Army (554)	
Navy (2)	
Air Force (165)	
Federal (VA)	111
Civilian	6
Interdepartmental	26
<hr/>	
Total	864

EDUCATION

Trainees: Two high school students received training in our division during summer 2005.

Faculty Appointments

Adjunct Professor, Hamline University, St Paul, Minn, VF Kalasinsky.

Scientific Appointments

Guest Researcher, National Institute of Diabetes, Digestive, and Kidney Diseases, NIH, VF Kalasinsky.

PRESENTATIONS

1. February 2005: Orlando, Fla, 56th Pittsburgh Conference on Analytical Chemistry and Spectroscopy, "Analysis of biological specimens following toxic chemical exposures," AA Shea.
2. March 2005: Jacksonville, Fla, Meeting of the Society of Armed Forces Medical Laboratory Scientists, "DoD Directory of Public Health Laboratory Services Internet-Accessible Database," KM Pizzolato.
3. April 2005: Kansas City, Mo, Durig Symposium, "Infrared and Raman microspectroscopy in biology and medicine," VF Kalasinsky.
4. October 2005: San Francisco, Calif, 43rd Annual Meeting of the Infectious Diseases Society of America, "DoD Directory of Public Health Laboratory Services Internet-Accessible Database," KM Pizzolato.
5. December 2005: Kissimmee, Fla, Society of Military Orthopaedic Surgeons 47th Annual Meeting, "Wound complications following the use of Fiberwire® in lower extremity traumatic amputations," AW Mack.

RESEARCH

Journal Articles

1. Osswald SS, Elston DM, Farley MF, Albertini JG, Cordero SC, Kalasinsky VF. Self-treatment of a basal cell carcinoma with "black and yellow" salve. *J Am Acad Dermatol*. 2005;53:509-11.
2. Kalasinsky KS, Kalasinsky VF. Infrared and Raman microspectroscopy of foreign materials in tissue specimens. *Spectrochim Acta A Mol Biomol Spectrosc*. 2005;61:1707-13.

Abstracts

1. Murakata LA, Lewin-Smith MR, Specht CS, Kalasinsky VF, McEvoy P, Vinh TN, Rabin L, Mullick FG. Characterization of embolization microsphere plastic in vitro and in human tissue sections by light microscopy and infrared microspectroscopy. *Arch Pathol Lab Med*. 2005;129:557.
2. Specht CS, Lewin-Smith MR, Murakata LA, Rushing EJ, Sandberg GD, Kalasinsky VF, Moroz AL, Mullick FG. Central nervous system neoplasia in 1990-1991 Gulf War veterans. *J Neuropathol Exp Neurol*. 2005;64:459.
3. Cordero SC, Luong TT, Tamanaha EY, Tsukerman S, Pizzolato KM, Shea AA. Analysis of biological specimens following toxic chemical exposures. Book of Abstracts of the 56th Pittsburgh Conference on Analytical Chemistry and Spectroscopy, Orlando, Fla, February

28–March 4, 2005.

4. Kalasinsky VF, Tristan JO, Pizzolato KM, Gaydos JC, MacIntosh VH, Malone JL, Mullick FG. DoD Directory of Public Health Laboratory Services Internet-Accessible Database. Book of Abstracts of the Society of Armed Forces Medical Laboratory Scientists, Jacksonville, Fla, March 13-17, 2005.
5. Pizzolato KM, Kalasinsky VF, Tamanaha EY, Tristan JO, Gaydos JC, MacIntosh VH, Malone JL, Rumm PJ, Mullick FG. DoD Directory of Public Health Laboratory Services Internet-Accessible Database. Book of Abstracts of the 43rd Annual Meeting of the Infectious Diseases Society of America, San Francisco, Calif, October 3-7, 2005.

Projects

1. Military working dogs deployed to Southwest Asia as sentinels for human environmental exposure during the Persian Gulf War.
2. Prospective clinical and laboratory evaluation of patients with silicone breast implants: determination of silicon baseline levels and molecular microanalysis of pathological specimens associated with fibrous capsules.
3. Update of skin pathology in Gulf War veterans.
4. Histopathologic study of inflammatory and neoplastic colon lesions in Gulf War veterans.
5. Infrared spectroscopic mapping of atherosclerotic plaques associated with sudden cardiac death.
6. Pathology of the lung in a cohort of former prisoners of war.
7. The timing of hepatitis C seroconversion in a cohort of Gulf War military veterans.
8. A histopathologic study of liver specimens from Persian Gulf War military veterans.
9. A review of the neuromuscular pathology of Gulf War veterans.
10. Histopathologic review and chemical analysis of autopsy material from the Agent Orange Registry.

In Gulf War-related studies, the division is participating in the DoD's Comprehensive Clinical Evaluation Program (CCEP). AFIP is charged with the long-term storage of blood and serum specimens collected from Gulf War veterans and their families who are reporting symptoms that might be related to service in the Gulf region. A database for diagnosis of surgical biopsies is also being maintained for Gulf War veterans reporting to VA or military hospitals.

Collaborators

Military/Federal

1. IW Levin, NIH: Vibrational imaging of tissue samples.
2. KC Holtzmuller, WRAMC: Hepatic disease in U.S. military Gulf War veterans.
3. KL Maggio, WRAMC: Blast injuries in military personnel.
4. JP Malone, JC Gaydos, VH MacIntosh, Global Emerging Infections System, Silver Spring, Md: DoD Directory of Public Health Laboratory Services.
5. AF Weir, U.S. Army Center for Health Promotion and Preventive Medicine, Aberdeen, Md: DoD Environmental Laboratory Compendium.
6. AC Samuels, U.S. Army Soldier Biological and Chemical Command, Aberdeen, Md: Infrared and Raman spectroscopic characterization of microorganisms.
7. JM Heller, U.S. Army Center for Health Promotion and Preventive Medicine, Aberdeen, Md: Deployment surveillance of active duty U.S. troops.
8. R Crawford, Division of Microbiology, AFIP: Infrared and Raman spectroscopic characterization of microorganisms.

PROFESSIONAL ACTIVITIES

Official Trips

1. February 2005, Joint Environmental Surveillance Work Group, Virginia Beach, Va, VF Kalasinsky.
2. March 2005, Society of Armed Forces Medical Laboratory Scientists Conference, Jacksonville, Fla, KM Pizzolato (ARP).
3. August 2005, Force Health Protection Conference, Louisville, Ky, VF Kalasinsky.
4. September 2005, IDSA Conference, San Francisco, Calif, KM Pizzolato.
5. November 2005, Joint Environmental Surveillance Work Group, San Antonio, Tex, VF Kalasinsky.

Manuscripts Reviewed

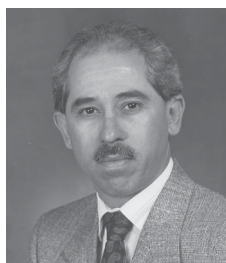
VF Kalasinsky:

1. *Applied Spectroscopy* (5)
2. *Journal of Molecular Structure* (2)
3. *Journal of Physical Chemistry* (5)
4. *Spectrochimica Acta* (3)
5. *Vibrational Spectroscopy* (1)

Editorial Boards

Vibrational Spectroscopy, VF Kalasinsky

DIVISION OF BIOPHYSICAL TOXICOLOGY



Jose A. Centeno, PhD

Chief

Date of Appointment – October 2001

STAFF

Scientific

- Jose A. Centeno, PhD, Chief
- Todor I. Todorov, PhD, Research Chemist and Laboratory Manager, ARP
- Sunday Ogunwuyi, PhD, Microbiologist
- (A,D) Marion Gray, PhD, Callender-Binford Fellow, ARP
- Simina Lal, MS, Environmental Chemistry Technician, ARP
- (A) Hanna Xu, MS, Environmental Chemistry Technician, ARP
- (A) Chin-Hsiao Tseng, MD, PhD, Visiting Scientist

IMPACT

- The division conducts consultation, education, and research in environmental and biophysical toxicology, environmental health, and analysis of trace elements, toxic metals, and foreign materials. We are tasked with the development of chemical and biophysical techniques for the characterization of inorganic and foreign materials in human and other animal tissues, with particular emphasis on elemental composition, chemical and toxicological speciation of toxic metals.
- The division provides analytical and archival support as part of the AFIP Depleted Uranium (DU) Registry. The DU Registry consists of archival materials, the development of a central analytical laboratory core facility dedicated to the analysis of total and isotopic uranium ratio in biological tissues and fluids, and a biological surveillance program to monitor potential cases of DU exposure within the 3 services. The DU Registry was established in collaboration with the DU Program at the Baltimore VAMC. In 2005, the DU Registry consisted of over 2,100 archived samples from the DU Biological Surveillance Program and 3 histological cases from the Baltimore-VA Clinical Follow-Up Program. The Registry is maintained by funds obtained from the VA Baltimore DU Program and USCHPPM.
- The division provides support and information on different topics related to DU, including measurement techniques, environmental monitoring, soldier biomonitoring, epidemiology, and histopathologic evaluations. The division's laboratory on DU analysis provided analytical support to USCHPPM, WRAMC-Health Physics and Preventive Medicine Programs, and to the Deployment Health Support Directorate (DHSD).
- Division staff have been actively involved as members of the DHSD Biomonitoring Working Group. Through participation on these committees, we have contributed to the development of guidelines for biomonitoring of nerve agent exposures and medical management of metal fragments.

- The division provided consultation and analytical toxicological support to the OAFME, US Center for Health Promotion and Preventive Medicine, DHSD, WRAMC, Navy Bureau of Medicine and Surgery, Brooke Army Medical Center, NCIS, Navy Health Research Center, DU Program at the Baltimore VAMC, and Army CID in several cases concerning potential exposure to environmental agents and toxic trace elements, including mercury, arsenic, lead, and DU.
- The division has established the Center for Analysis and Quality Assurance for the study of complementary medicine preparations of military relevance (MIL-CAM). Division staff were able to secure grant funds totaling \$100,000 for the continuing development of this Center, aimed at establishing laboratory procedures and analytical toxicological assays to elucidate the chemical properties and health effects of remedies and supplements which may be used by soldiers.
- The division maintains the Breast Explant Registry and conducts a research program on archiving, consultation, and biophysical studies of silicone breast explants and bioimplantable materials. This Registry has an extensive collection of published literature, CDs, and a list of patents on materials used in the manufacture of silicone breast implants and other biomedical devices.
- The division has developed and maintains the International Tissue and Tumor Repository for Chronic Arseniasis, with the partial support of the EPA and NIH. This Repository serves as a centralized facility for collecting, archiving, and studying tissue specimens from populations chronically exposed to arsenic.
- The division has developed and maintains the only DoD Registry on Medical Geology, with partial support from national and international organizations including the US Geological Survey, UNESCO, and the International Union of Geological Sciences. This Registry is aimed at the study and characterization of geological and environmental factors and their distribution on the development of health problems in humans and animals. Health problems associated with exposure to lead, mercury, fluoride, cadmium, arsenic and other toxic metals are being studied. The division has also developed a teaching and training unit on medical geology based on a 3-day course titled “Metals, Health and the Environment.”
- In collaboration with other federal agencies including the US Geological Survey and the EPA, division staff collaborate with scientists from the Ukraine in studying potential health effects of exposure to mercury from mining practices in the city of Gorlovka.

CONSULTATION

In 2005, the division consulted on over 620 cases requiring DU analysis. In addition, division staff worked closely with the OAFME and the NCIS in several suspected cases of toxic metal poisoning. We reported 10 cases in which foreign materials and metal fragments were identified employing confocal laser Raman microscopy, infrared microspectroscopy and scanning electron microscopy with energy dispersive x-ray microanalysis. Multi-element quantitative analysis was provided on 4 cases and single element quantitative results were provided on over 50 new cases and 12 intradepartmental consults.

<i>Cases</i>	<i>Completed</i>
Military	12
Army (8)	
Navy (1)	
Air Force (3)	
Federal	
VA	594
Civilian	21
Interdepartmental	12
Total	639

Deployments

JA Centeno:

1. January 2005, Marinduque, The Philippines, US Environmental Health and Engineering Team Leader, Environmental Health Assessment.
2. February 2005, Virginia, Deployment Health Support Directorate, Biomonitoring Working Group Meeting.

3. April 2005, National Academies of Science, National Research Council, Committee on Earth Sciences and Public Health.
4. August 2005, Louisville, Ky, 8th Annual Force Health Protection Conference, Invited Speaker and Short Course Director.
5. August 2005, Ukraine, US Environmental and Geochemical Team Leader, Mercury Exposure Study.
6. November 2005, Virginia, Deployment Health Support Directorate, Biomonitoring Working Group Meeting.
7. December 2005, Washington, DC, VA/DHSD Depleted Uranium Meeting.
8. December 2005, WRAMC, Medical Management of Chemical and Biological Casualties (MMCBC).

EDUCATION

Courses: In collaboration with the Education and Research Programs Branch, division staff organized 10 AFIP short courses and gave a total of 62 lectures. These activities had a total of 670 attendees for approximately 4,270 man-hours.

Trainees: In 2005, division staff provided training to one international visiting scientist from the Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan; one forensic pathologist from the OAFME; and 2 high-school students (2-month internships on environmental and biophysical toxicology).

Faculty Appointments

JA Centeno:

1. Adjunct Professor of Environmental and Occupational Health, The George Washington University School of Public Health.
2. Distinguished Visiting Professor, University of Turabo, School of Sciences and Technology, Caguas, Puerto Rico.
3. Adjunct Professor of Environmental Sciences, Jackson State University, College of Engineering, Science and Technology, Environmental Science PhD Program, Jackson, Mississippi.
4. Visiting Professor, Hope University School of Medicine, Belize.
5. Guest Professorship, China University of Mining and Technology, Beijing, China.

Presentations

JA Centeno:

1. January 2005: Manila, The Philippines, National Philippines Hospital and Department of Health of the Philippines, "Environmental toxicology, health effects and analyses of toxic metals and metalloids."
2. January 2005: San Juan, PR, Universidad del Este, Ana G. Mendez University System, Interactive Television Conference, "Medical geology: the impact of the natural environment on human health."
3. January 2005: San Juan, PR, Universidad del Este, Ana G. Mendez University System, Interactive Television Conference, "Current topics on toxicology and environmental research: cases of chronic arsenic exposure."
4. March 2005: New York, NY, New York University School of Medicine, Nelson Institute for Environmental Medicine, "Topics on medical geology: toxicology, health effects and biomonitoring of depleted uranium exposure."
5. June 2005: Montevideo, Uruguay, International Conference of the Society of Toxicology and Ecotoxicology, "Medical geology: an emerging discipline in environmental medicine."
6. July 2005: Aveiro, Portugal, 8th International Environmental Geochemistry Conference of the Portuguese Speaking Countries, "Medical geology: an emerging discipline in environmental medicine and public health."
7. August 2005: Louisville, Ky, 8th Annual Force Health Protection Conference, "Biomonitoring and chemical assessment of exposure to depleted uranium."
8. September 2005: Jackson, Miss, 2nd International Symposium on Recent Advances in Environmental Health Research, "Medical geology: the missing link between medicine and earth sciences."
9. September 2005: Alexandria, Egypt, University of Alexandria School of Medicine, "Chronic mercury exposure: a clinical and toxicological perspective."

RESEARCH

Journal Articles

1. Katzin WE, Centeno JA, Feng LJ, Kiley M, Mullick FG. Pathology of lymph nodes from patients with breast implants: a histologic and spectroscopic evaluation. *Am J Surg Pathol*. 2005;29:506-11.
2. Cook AG, Weinstein P, Centeno JA. Health effects of natural dust: role of trace elements and compounds. *Biol Trace Elem Res*. 2005;103:1-15.
3. Ejnik JW, Todorov TI, Mullick FG, Squibb K, McDiarmid MA, Centeno JA. Uranium analysis in urine by inductively coupled plasma dynamic reaction cell mass spectrometry. *Anal Bioanal Chem*. 2005;382:73-9.
4. Arun P, Moffett JR, Ives JA, Todorov TI, Centeno JA, Namboodiri MA, Jonas WB. Rapid sodium cyanide depletion in cell culture media: outgassing of hydrogen cyanide at physiological pH. *Anal Biochem* 2005;339:282-9.
5. Finkelman RB, Centeno JA, Selinus O. The emerging Medical and Geological Association. *Trans Am Clin Climatol Assoc*. 2005;116:155-65.
6. Liu PC, Chen YW, Centeno JA, Quezado M, Lem K, Kaler SG. Downregulation of myelination, energy, and translational genes in Menkes disease brain. *Mol Genet Metab*. 2005;85:291-300.
7. Baydur A, Koss MN, Sharma OP, Dalgleish GE, Nguyen DV, Mullick FG, Murakata LA, Centeno JA. Microscopic pulmonary embolization of an indwelling central venous catheter with granulomatous inflammatory response. *Eur Respir J*. 2005;26:351-6.
8. Todorov TI, Ejnik JW, Mullick FG, Centeno JA. Arsenic speciation in urine and blood reference materials. *Microchim Acta* 2005;1:1-6.
9. Centeno JA, Mullick FG, Finkelman RB, Selinus O. Medical geology: an emerging discipline in support of environmental and military medicine. *Mil Med Tech*. 2005;9:7-9.

Abstracts

Centeno JA, Finkelman RB, Selinus O. Medical Geology: Impacts of the Natural Environment on Public Health. Book of Proceedings of the VIII Congreso de Geoquímica dos Países de Língua Portuguesa. 2005;1:15-22.

Book Chapters

1. Centeno JA, Mullick FG, et al. Environmental pathology and medical geology: an overview of health effects from exposure to toxic metals. In: Olle S, Centeno JA, Alloway B, Finkelman RB, et al., eds. *Essentials of Medical Geology: Impacts of the Natural Environment on Public Health*. Elsevier-Academic Press; 2005:563-94.
2. Centeno JA, Todorov T, Pestaner JP, Mullick FG, Jonas W. Histochemical and microprobe analysis in medical geology. In: Olle S, Centeno JA, Alloway B, Finkelman RB, et al., eds. *Essentials of Medical Geology: Impacts of the Natural Environment on Public Health*. Elsevier-Academic Press; 2005:725-36.
3. Centeno JA, Gray MA, Mullick FG, Tchounwou PB, Tseng CH. Arsenic in drinking water and health issues. In: Moore TA, Black A, Centeno JA, Harding J, Trumm DA, eds. *Metal Contaminants in New Zealand: Sources, Treatments and Effects on Ecology and Human Health*. Christchurch, NZ: Resolutionz Press; 2005:415-39.
4. Gray MA, Harris A, Centeno JA. The role of cadmium, zinc and selenium in prostate disease. In: Moore TA, Black A, Centeno JA, Harding J, Trumm DA, eds. *Metal Contaminants in New Zealand: Sources, Treatments and Effects on Ecology and Human Health*. Christchurch, NZ: Resolutionz Press; 2005:393-414.

Books

1. Olle S, Centeno JA, Alloway B, Finkelman RB, et al., eds. *Essentials of Medical Geology: Impacts of the Natural Environment on Public Health*. Elsevier-Academic Press; 2005.
2. Moore T, Black A, Centeno J, Harding J, Trumm D, eds. *Metal Contaminants in New Zealand: Sources, Treatments and Effects on Ecology and Human Health*. Christchurch, NZ: Resolutionz Press; 2005.

Projects

PI: JA Centeno

1. Depleted Uranium Follow-up Program: biological surveillance, chemical analysis and repository of specimens.
2. Sarcoidosis and occupational lung disease quality assurance program in the Navy.

3. Dietary and occupational risk factors for prostate disease.
4. Reliability of the determination of Cd, Zn and Se levels in paraffin-embedded prostate tissue.
5. Histopathologic and laser Raman microprobe analysis of regional lymph nodes from patients with silicone breast implants.
6. Development of the International Tissue and Tumor Repository for Chronic Arseniasis.

In Operation Iraqi Freedom-related studies, division staff collaborated with the Department of Toxicology, University of Maryland, Baltimore, the Inorganic Laboratory Section at the CDC, USCHPPM, Deployment Health Directorate and Preventive Medicine Section at WRAMC on a research program to study low levels of DU in tissues and body fluids from exposed service personnel.

Collaborators

Military/Federal

1. DI Bannon, US Army Center for Health Promotion and Preventive Medicine, Aberdeen, Md: Relative bioavailability of copper and lead in soil from military ranges using *Colinus virginianus*.
2. MA McDiarmid, K Squibb, University of Maryland, Baltimore, VA Baltimore Center: Follow-up and monitoring of Gulf War veterans with fragments of depleted uranium and other sources of depleted uranium exposure.
3. WB Jonas, USUHS, Samueli Institute for Information Biology: Effects of low and ultra-low doses of cadmium in RWPE-1 prostate cells.
4. WB Jonas, USUHS, Samueli Institute for Information Biology: Complex homeopathy drug development in neurodegenerative diseases.
5. J Medlin, G Plumlee, US Geological Survey: Environmental medicine of mining-related activities in the Island of Marinduque, The Philippines.
6. RB Finkelman, US Geological Survey, C Groves, Western Kentucky University: Environmental health research in China: a consortium between AFIP, Western Kentucky University, US Geological Survey, and US EPA.
7. A Kolker, US Geological Survey, H Gibb, Science International: Feasibility of assessing health risks from long-term mercury exposure in Gorlovka, Ukraine.
8. WF Regnault, FDA: Mechanistic determination of stress-induced dystrophic calcification in cardiovascular materials and devices.
9. WF Regnault, FDA: Assessment of calcium phosphate deposition mechanisms in dental and orthopedic applications.
10. USGS: Environmental and health impacts from mining waste disposal.
11. VA-Baltimore Center, University of Maryland: Uranium-spiked control semen study statement of work.

Civilian

C Groves, Western Kentucky University, RB Finkelman, USGS: Establishment of Center of Excellence for Environmental Health Research in China.

International

1. P Weinstein, University of Western Australia, School of Public Health Research: Medical geology and emerging infectious diseases.
2. D Slaney, Environmental Science Research, Wellington, NZ: Establishment of a Joint NZ/USA Centre of Excellence in Environmental Health and Research on Prostate Disease.
3. O Selinus, Geological Survey of Sweden: Medical geology.
4. S Caroli, Institute Nazionale di Sanita, Rome, Italy: Speciation of trace elements and depleted uranium analysis.
5. E Sabbioni, European Centre for the Validation of Alternative Methods, Joint Research Centre, Ispra, Italy: Toxicology of arsenic and nanotechnologies.
6. CH Tseng, National Taiwan University Hospital, Taipei, Taiwan: Environmental-clinical toxicology, epidemiology and arsenic health effects.
7. B Zheng, Academia Sinica and Institute of Environmental Geochemistry, China: Medical geology and health effects of toxic trace elements.

PROFESSIONAL ACTIVITIES

Official Trips

JA Centeno:

- 1. January 2005, Department of Health and National Philippine Hospital, Manila, The Philippines.
- 2. August 2005, 8th Annual Force Health Protection Conference, Louisville, Ky.
- 3. August 2005, National Institute of Occupational Health, Kiev, Ukraine.

Manuscripts Reviewed

JA Centeno:

- 1. Biological Trace Element Research (1)
- 2. Environmental Health Focus (1)
- 3. International Journal of Environmental Research and Public Health (1)

Editorial Boards

JA Centeno:

- 1. Biological Trace Element Research
- 2. International Journal of Environmental Research and Public Health
- 3. Environmental Health Focus
- 4. Environmental Toxicology

Awards

JA Centeno:

- 1. 3rd Annual Research and Sponsored Programs Excellence Award, Jackson State University, Jackson, Miss.
- 2. Commendation Award, British Medical Association, for Essentials of Medical Geology: Impacts of the Natural Environment on Public Health.

CHEMICAL MICROSCOPY LABORATORY

STAFF

Scientific

H. Marie Jenkins, HT, ASCP, Histochemical Technologist

IMPACT

- The laboratory conducts analyses on more calculi than any other laboratory in the military, and the number of cases increases each year.
- The laboratory provides scanning electron microscopy with energy-dispersive x-ray analysis for the AFIP and DoD.

CONSULTATION

Military installations submitted 762 calculi for identification, and 121 calculi were received from VA medical centers.

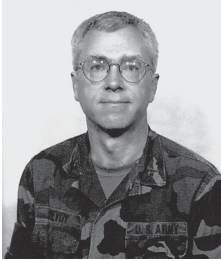
Cases

Military	758
Army (607)	
Navy (1)	
Air Force (150)	
Federal (VA)	121
Interdepartmental	4
Total .	883

RESEARCH

Projects: Evaluation of the composition of urinary calculi in military personnel.

DIVISION OF INFECTIOUS AND TROPICAL DISEASES PATHOLOGY



Peter L. McEvoy, COL, MC, USA
Chief
Date of Appointment – 14 April 1997/2001

STAFF

Medical

Peter L. McEvoy, COL, MC, USA, Division Chief
Mary K. Klassen-Fischer, MD, Chief, Fungal Diseases Branch
Ronald C. Neafie, MS, Chief, Parasitology Branch
(D) Wayne M. Meyers, MD, PhD, Chief, Mycobacteriology Branch
(A) Wayne M. Meyers, MD, PhD, Red Cross Volunteer
Douglas J. Wear, MD, DS, ARP, Associate Chair

Fellow

Melanie Maleombho-Usher, MD, Red Cross Volunteer

Administrative

Darlene Wilson, Office Manager, ARP
Krystal Diouf, Office Manager, Contractor

IMPACT

Operation Iraqi Freedom has produced a significant number of cases of cutaneous leishmaniasis. A Leishmania Registry was established to capture patient data and allow for long-term follow-up. As of the end of 2005, 1,081 patients were enrolled: 941 Army, 21 Air Force, 26 Navy, 37 unknown, and 56 civilians. Of these, 721 patients were positive: 658 Army, 4 Air Force, 12 Navy, 18 unknown, and 29 civilians. Two patients with visceral leishmaniasis are included. Our division is the military's gold standard for the diagnosis of leishmaniasis.

CONSULTATION

Infectious diseases are a major cause of morbidity in the military and a significant possible cause of mortality, as judged by DHS. Our division is the only group of pathologists in the world dedicated to the pathology of infectious diseases. Glass slides and paraffin blocks of tissues suspected to contain lesions caused by infectious disease agents are stained with a number of special stains to capture gram-positive or gram-negative bacteria, fungi, mycobacteria, or viruses. Our many years of experience observing infectious agents' destructive footprints in tissue, and the tissue's reaction, help us judge whether a lesion is due to an infectious agent and what is the most likely etiologic agent.

<i>Cases</i>	<i>Completed</i>
Military	445
Army (356)	
Navy (40)	
Air Force (49)	
Federal	88
VA (86)	
FMIL (2)	
Civilian	294
Interdepartmental	936
Total	1,763

Clinical Appointments

1. Visiting Pathologist, WRAMC, PL McEvoy.
2. Visiting Pathologist, WRAMC, MK Klassen-Fischer.

Deployments

1. Monthly, WRAMC, sign-out of pathology cases, PL McEvoy, MK Klassen-Fischer.
2. July 2005, Kenya, Development with WRAIR Center of Excellence for Malaria Microscopy, PL McEvoy.

EDUCATION

Courses: Division staff participated as faculty in one AFIP course in 2005.

Trainees: The division hosted 2 Red Cross volunteers and a college student in 2005.

Presentations

1. March 2005: Geneva, Switzerland, 8th WHO Advisory Group Meeting on Buruli Ulcer, "Genotyping Mycobacterium ulcerans, Mycobacterium marinum and related species using mycobacterial interspersed repetitive units," P Stragier, A Ablordey, P Suykerbuyk, WM Meyers, F Portaels.
2. March 2005: Geneva, Switzerland, 8th WHO Advisory Group Meeting on Buruli Ulcer, "Buruli ulcer: village follow-up of treated patients in rural Benin," M Debacker, J Aguiar, C Steunou, C Zinsou, WM Meyers, F Portaels.
3. March 2005: Geneva, Switzerland, 8th WHO Advisory Group Meeting on Buruli Ulcer, "Mycobacterium ulcerans toxic macrolide, mycolactone, modulates the host immune response and cellular location of M. ulcerans in vitro and in vivo," S Adusumilli, A Mve-Obiang, T Sparer, WM Meyers, J Hayman, PL Small.
4. March 2005: Geneva, Switzerland, 8th WHO Advisory Group Meeting on Buruli Ulcer, "Analysis of the Mycobacterium ulcerans disease (Buruli ulcer) at Kimpese in the province of Bas-Congo in the Democratic Republic of Congo from 2002-2004," MD Phanzu, AE Bafende, KB Dunda, ZS Nsiangana, BD Imposo, A Kibadi Kapay, NJ Singa, F Portaels, WM Meyers.
5. March 2005: New York, NY, NYU Medical Center, "12 unknowns," RC Neafie.
6. April 2005: Bethesda, Md, NIH Clinical Tropical Medicine Meeting, "Case presentations," RC Neafie.
7. May 2005: Aomori, Japan, 78th Congress of the Japanese Leprosy Association, "History of the management of leprosy in the United States of America," Keynote Address, WM Meyers.
8. May 2005: Aomori, Japan, 78th Congress of the Japanese Leprosy Association, Symposium on the Global Prevalence of Buruli Ulcer, "Clinicopathologic classification of Mycobacterium ulcerans disease (Buruli ulcer)," WM Meyers.
9. May 2005: Aomori, Japan, 78th Congress of the Japanese Leprosy Association, Symposium on the Global Prevalence of Buruli Ulcer, "Laboratory diagnosis of Buruli ulcer with emphasis on molecular biologic methods," F Portaels, Y Stienstra, T van der Werf, WM Meyers.
10. June 2005: Baltimore, Md, Johns Hopkins School of Hygiene and Public Health Summer Tropical Medicine Course, "Pathology of tropical diseases," PL McEvoy.
11. July 2005: Durham, NC, Duke University Medical Center, "Tissue parasites," RC Neafie.
12. July 2005: Bethesda, Md, USUHS, Military Tropical Medicine Course, "Loiasis and dracunculiasis," RC Neafie.
13. July 2005: Kenya, Malaria Microscopy Center of Excellence, "Thick or thin blood films? Pros and cons," PL McEvoy.
14. August 2005: Washington, DC, WRAMC, "Nematode infections," RC Neafie.
15. August 2005: Washington, DC, WRAMC, "Cestode, trematode, and acanthocephalid infections," RC Neafie.
16. August 2005: Washington, DC, George Washington University Medical Center Pathology Residency Program, "Pathology of infectious diseases 1," PL McEvoy.
17. August 2005: Washington, DC, George Washington University Medical Center Pathology Residency Program, "Pathology of infectious diseases 2," PL McEvoy.
18. September 2005: Bethesda, Md, NIH Clinical Tropical Medicine Meeting, "Case presentation," RC Neafie.
19. September 2005: Washington, DC, WRAMC Combined Pathology Residents Program, "Review of infectious disease pathology 1," PL McEvoy.
20. September 2005: Washington, DC, WRAMC Combined Pathology Residents Program, "Review of infectious disease pathology 2," PL McEvoy.

21. September 2005: Washington, DC, WRAMC Combined Pathology Residents Program, "Review of infectious disease pathology 3," PL McEvoy.
22. October 2005: Washington, DC, George Washington University Medical School, Tropical Medicine Association of Washington, "Some interesting and unusual infections in humans," RC Neafie.
23. October 2005: Washington, DC, AFIP Wednesday Staff Conference, "Pathologic diagnoses of cutaneous diseases clinically mimicking leishmaniasis," MK Klassen-Fischer.
24. October 2005: Washington, DC, AFIP Wednesday Staff Conference, "Establishment of a malaria microscopy competency assessment program," PL McEvoy.
25. December 2005: Cotonou, Benin, TUBA International Colloquium on Improving Case Management and Control of Tuberculosis and Buruli Ulcer in Africa, "Proposed clinico-pathologic classification and natural history of Mycobacterium ulcerans disease (Buruli ulcer)," WM Meyers, FM Abalos, J Aguiar, M Maleombho-Usher, F Portaels.
26. December 2005: Cotonou, Benin, TUBA International Colloquium on Improving Case Management and Control of Tuberculosis and Buruli Ulcer in Africa, "Risk factors for Mycobacterium ulcerans disease (Buruli ulcer): a case-control study in Benin," M Debacker, F Portaels, J Aguiar, C Steunou, C Zinsou, WM Meyers, M Dramaix.
27. December 2005: Cotonou, Benin, TUBA International Colloquium on Improving Case Management and Control of Tuberculosis and Buruli Ulcer in Africa, "Mycobacterium ulcerans disease (Buruli ulcer) in a rural hospital in Bas-Congo, Democratic Republic of Congo, 2002-2004," D Phanhu Mavinga, E Bafende Aombe, B Dunda Kimi, D Imposo Bafunga, A Kibadi Kapay, ZS Nsiangana, J Singa Nyota, WM Meyers, P Suykerbuyk, F Portaels.
28. December 2005: Cotonou, Benin, TUBA International Colloquium on Improving Case Management and Control of Tuberculosis and Buruli Ulcer in Africa, "Heterogeneity of Mycobacterium ulcerans in Africa," P Stragier, A Ablordey, LM Bayonne, YL Lugor, IS Sindani, P Suykerbuyk, H Wabinga, WM Meyers, F Portaels.
29. December 2005: Cotonou, Benin, TUBA International Colloquium on Improving Case Management and Control of Tuberculosis and Buruli Ulcer in Africa, "First report of Mycobacterium ulcerans infection from a Buruli ulcer endemic region in the Democratic Republic of Congo: preliminary results," P Suykerbuyk, D Meirte, MD Phanhu, WM Meyers, F Portaels.

RESEARCH

Journal Articles

1. Adusumilli S, Mve-Obiang A, Sparer T, Meyers WM, Hayman J, Small PL. Mycobacterium ulcerans toxic macrolide, mycolactone, modulates the host immune response and cellular location of M. ulcerans in vitro and in vivo. *Cell Microbiol.* 2005;7:1295-1304.
2. Debacker M, Aguiar J, Steunou C, Zinsou C, Meyers WM, Portaels F. Buruli ulcer recurrence, Benin. *Emerg Infect Dis.* 2005;11:584-9.
3. Johnson RC, Makoutode M, Sopoh GE, Elsen P, Gbovi J, Pouteau LH, Meyers WM, Boko M, Portaels F. Buruli ulcer distribution in Benin [letter]. *Emerg Infect Dis.* 2005;11:500-1.
4. Lesho EP, Wortmann G, Neafie R, Aronson N. Nonhealing skin lesions in a sailor and a journalist returning from Iraq. *Cleve Clin J Med.* 2005;72:93-4, passim.
5. Lo SC, Wang RY, Grandinetti T, Zou N, Hayes MM, Shih JW, Wear DJ. Mycoplasma penetrans infections and seroconversion in patients with AIDS: identification of major mycoplasmal antigens targeted by host antibody response. *FEMS Immunol Med Microbiol.* 2005;44:277-82.
6. Nguyen JC, Murphy ME, Nutman TB, Neafie RC, Maturo S, Burke DS, Turiansky GW. Cutaneous onchocerciasis in an American traveler. *Int J Dermatol.* 2005;44:125-8.
7. Oliveira MS, Fraga AG, Torrado E, Castro AG, Pereira JP, Longatto Filho A, Milanezi F, Schmitt FC, Meyers WM, Portaels F, Silva MT, Pedrosa J. Infection by Mycobacterium ulcerans induces persistent inflammatory responses in mice. *Infect Immun.* 2005;73:6299-310.
8. Stragier P, Ablordey A, Meyers WM, Portaels F. Genotyping Mycobacterium ulcerans and Mycobacterium marinum by using mycobacterial interspersed repetitive units. *J Bacteriol.* 2005;187:1639-47.
9. Walsh DS, Meyers WM, Portaels F, Lane JE, Mongkolsirichaikul D, Hussem K, Gosi P, Myint KS. High rates of apoptosis in human Mycobacterium ulcerans culture-positive Buruli ulcer skin lesions. *Am J Trop Med Hyg.* 2005;73:410-5.

10. Wear DJ, Casey BL, reviewers. *JAMA*. 2005;293:1801. Review of: Glynn I, Glynn J. *The Life and Death of Smallpox*.

Abstracts

1. Debacker M, Portaels F, Aguiar J, Steunou C, Zinsou C, Meyers WM, Dramaix M. Risk factors for *Mycobacterium ulcerans* disease (Buruli ulcer): a case-control study in Benin. TUBA International Colloquium on Improving Case Management and Control of Tuberculosis and Buruli Ulcer in Africa, Cotonou, Benin, 2005. Abstract 127.
2. Hira PR, Dabbous H, Amer M, Al-Shammari J, Iqbal J, Khalid N, Francis I, Wilson M, Neafie R, Eberhard M. Zoonotic onchocerciasis with bilateral ocular toxoplasmosis: report of a case from the Arabian Peninsula. American Society for Microbiology, June 7, 2005. Abstract C-243.
3. Klassen-Fischer MK, Neafie RC, Hayden RT. Surgical pathology of arthropods: case series review and development of a diagnostic algorithm. *Mod Pathol*. 2005;18(Suppl 1):263A, Abstract 1216.
4. Meyers WM. History of the management of leprosy in the United States of America. *Jpn J Lepr*. 2005;74:77-8.
5. Meyers WM. Clinicopathologic classification of *Mycobacterium ulcerans* disease (Buruli ulcer). The Global Prevalence of Buruli Ulcer (Symposium), 78th Congress of the Japanese Leprosy Association, Aomori, Japan. *Jpn J Lepr*. 2005;74:89.
6. Portaels F, Stienstra Y, van der Werf T, Meyers WM. Laboratory diagnosis of Buruli ulcer with emphasis on molecular biologic methods. The Global Prevalence of Buruli Ulcer (Symposium), 78th Congress of the Japanese Leprosy Association, Aomori, Japan. *Jpn J Lepr*. 2005;74:80-1.
7. Meyers WM, Abalos FM, Aguiar J, Maleombho-Usher M, Portaels F. Proposed clinicopathologic classification and natural history of *Mycobacterium ulcerans* disease forms. TUBA International Colloquium on Improving Case Management and Control of Tuberculosis and Buruli Ulcer in Africa, Cotonou, Benin, 2005:59.
8. Phanzy Mavinga D, Bafende Aombe E, Dunda Kimi B, Imposo Bafunga D, Kibadi Kapay A, Nsiangana ZS, Singa Nyota J, Meyers WM, Suykerbuyk P, Portaels F. *Mycobacterium ulcerans* disease (Buruli ulcer) in a rural hospital in Bas-Congo, Democratic Republic of Congo, 2002-2004. TUBA International Colloquium on Improving Case Management and Control of Tuberculosis and Buruli Ulcer in Africa, Cotonou, Benin, 2005:155.
9. Stragier P, Ablordey A, Bayonne LM, Lugor YL, Sindani IS, Suykerbuyk P, Wabinga H, Meyers WM, Portaels F. Heterogeneity of *Mycobacterium ulcerans* in Africa. TUBA International Colloquium on Improving Case Management and Control of Tuberculosis and Buruli Ulcer in Africa, Cotonou, Benin, 2005:157.
10. Suykerbuyk P, Meirte D, Phanzy MD, Meyers WM, Portaels F. First report of *Mycobacterium ulcerans* infection from a Buruli ulcer endemic region in the Democratic Republic of Congo: preliminary results. TUBA International Colloquium on Improving Case Management and Control of Tuberculosis and Buruli Ulcer in Africa, Cotonou, Benin, 2005:159.

Other Publications

1. McEvoy PL. Granulomatous mastitis, favor causation by *Corynebacterium* spp. HQAP-2005-I-4 AFIP.
2. Klassen-Fischer MK. AFIP Videoteleconference: Pathology of Fungal Infections, June 2005
3. Klassen-Fischer MK. AFIP Videoteleconference: Pathology of Fungal Infections, August 2005.

Collaborators

Military

1. WRAMC, Infectious Disease Department: Leishmaniasis.
2. WRAIR, Leishmaniasis Diagnostic Laboratory: Leishmaniasis.

Civilian

American Leprosy Mission

PROFESSIONAL ACTIVITIES

Official Trips

1. February 2005, USCAP, San Antonio, Tex, WM Meyers, MK Klassen-Fischer, RC Neafie.
2. March 2005, 8th WHO Advisory Group Meeting on Buruli Ulcer, Geneva, Switzerland,

WM Meyers.

3. April 2005, Southeastern Society of Parasitologists, Blacksburg, Va, RC Neafie.
4. May 2005, 78th Congress of the Japanese Leprosy Association, Aomori, Japan, WM Meyers.
5. September 2005, Armed Forces Epidemiological Board, Colorado Springs, Colo, DJ Wear (AFIP).
6. November 2005, Damien-Dutton Society for Leprosy Aid Board Meeting, Bellmore, NY, WM Meyers.
7. December 2005, TUBA International Colloquium on Improving Case Management and Control of Tuberculosis and Buruli Ulcer in Africa, Cotonou, Benin, Organized and Sponsored by the Belgian Government and the Institute of Tropical Medicine, Antwerp, Belgium, WM Meyers.
8. December 2005, Armed Forces Epidemiological Board, Fayetteville, NC, DJ Wear (AFIP).

Editorial

1. Reviewed photomicrographs for various articles in *Clinical Infectious Diseases*, MK Klassen-Fischer.
2. Reviewed abstracts for USCAP meeting, MK Klassen-Fischer.

Honors

WM Meyers:

1. Government of Belgium Medallion of the Instituut voor Tropische Geneeskunde (ITG) (Institute of Tropical Medicine, Prince Leopold), for 35 years of collaboration in studies on diseases of Africa, especially leprosy and Buruli ulcer. Presented at the TUBA International Colloquium, Improving Case Management and Control of Tuberculosis and Buruli Ulcer in Africa, Cotonou, Benin, December 2005.
2. Jury President, doctoral thesis defense, "Etude des facteurs de l'environnement physique et humain de l'ulcère de Buruli dans la Commune de Lalo au Bénin," by Dr. Roch Christian Johnson, MD, MSc, Abomey Calavi University, Abomey Calavi, Benin, and the Institute of Tropical Medicine, Antwerp, Belgium.

DIVISION OF MICROBIOLOGY



Robert Crawford, PhD

Chief

Date of Appointment – 1 November 2003

ORGANIZATION

The division is organized into 8 branches and the Office of the Chief:

- Bacteriology, Stephen Francesconi, PhD
- Molecular Biology, Patrick Kennedy, Capt, USAF, BSC
- Microbial Forensics Research, Genomics and Sequencing, Susan Jones, PhD, MFS
- Immunology and Animal Research, Mina Izadjoo, PhD
- Optical Spectroscopy, Kathryn S. Kalasinsky, PhD
- Virology, Sue Cross, PhD
- Quality Assurance, James Hanson, Capt, USAF, Deputy Division Chief
- Laboratory Operations, Michael Dobson, PhD

STAFF

Scientific

- Robert Crawford, PhD, Chief
- (D) Richard Schoske, Maj, USAF, Deputy Division Chief
- James Hanson, Capt, USAF, Chief, Quality Assurance, Deputy Division Chief
- Michael Dobson, PhD, Chief, Laboratory Operations
- Stephen Francesconi, PhD, Chief, Bacteriology
- (D) Clarence Gagni, Capt, USAF, Chief, Molecular Diagnostics
- (A) Patrick Kennedy, Capt, USAF, BSC, Chief, Molecular Biology
- Susan Jones, PhD, Chief, Microbial Forensics Research, Genomics and Sequencing
- Mina Izadjoo, PhD, Chief, Immunology and Animal Research
- Kathryn S. Kalasinsky, PhD, Chief, Optical Spectroscopy
- (D) Lynn Cooper, PhD, Chief, Virology
- (A) Sue Cross, PhD, Chief, Virology
- Binxue Zhang, PhD, Senior Research Scientist
- (A) Ukkubandage Gunasinghe, PhD, Senior Research Scientist
- (A) Curtis M. Sharkey, PhD, Research Virologist
- Michael Dempsey, Maj, USAF, AFIT, PhD Student
- (D) David Cepeda, LT, USN, Microbiologist
- Kenesah Ferebee, TSgt, USAF, Laboratory Technician, NCOIC
- Bryan Balignot, SGT, USA, Laboratory Technician, Asst NCOIC
- (A) Curtis Young, HM1, USN, Laboratory Technician, LSO
- Robert Burgess, Microbiologist
- Mark Chrustowski, Molecular Biologist
- (A) Jill Cullen, Molecular Biologist
- (A) Jennifer Engle, Molecular Biologist
- Elizabeth Kurrle, Molecular Biologist
- (A) Justin Jay, Molecular Biologist
- (A) Rachael Jeanty, Virology Technician
- Ellen LaMorena, Molecular Biologist
- Vanessa Marcel, Molecular Biologist
- (D) Meron Mathias, Molecular Biologist
- (D) John McGraw, Molecular Biologist
- Adrein Ravizee, Research Technician
- April Shea, Microbiologist
- (A) Heidi St John, Microbiologist
- Wendell Thomas, Microbiologist
- Joe Thompson, Animal Research Technician
- Kimberly Wahowski, Microbiologist
- (A) Elizabeth Wallace, Microbiologist
- (D) Miranda Ward, Microbiologist

Administrative

Levi Horton, Administrative Assistant

IMPACT

Our division has developed the following new methods for microbial analysis:

1. Designed and optimized 17 conventional *F. tularensis* subspecies-specific PCR assays, including one differential among 3 different subspecies *tularensis* genotypes.
2. Designed and optimized an 8-target multilocus variable numbered tandem repeat analysis (MLVA) “mini-MLVA” assay for subspecies and strain-level differentiation of *F. tularensis*.
3. Developed Raman microscopy signature and DNA fingerprinting protocol for future Raman signature/DNA fingerprinting microbial analytical techniques.
4. Developed ATR FT-IR optical measurements for QA of threat antigens used in spectroscopic testing.
5. Developed discriminate function analysis using hierarchical clusters for Raman data to be applied to bioterror detection.
6. Dupont Qualicon™ RiboPrinter® DNA analysis of clinical microbiological samples.
7. Automated microbial characterization based on 16S, 23S, 5S rRNA and spacer region including Glu-tRNA.

CONSULTATION

Cases	Completed
Environmental	86
FBI	34
Clinical	16
Consolidated Safety	52
WRAMC	16
Total	102

National/International Consultations

1. FBI, Washington, DC
2. Edgewood Chemical and Biological Command, Aberdeen, Md
3. National Interagency Genome Science Coordinating Committee, Arlington, Va
4. Ministry of Health in Country of Croatia, Dubrovnik, Croatia
5. Department of Homeland Security, National Biological and Countermeasures Center, National BioForensic Analysis Center, Frederick, Md
6. AOAC/Homeland Defense Special Anthrax Diagnostic Test

EDUCATION**Presentations**

1. January 2005: AFIP Weekly Professional Staff Conference, K Kalasinsky, M Dempsey, S Jones.
2. February 2005: Omaha, Neb, Doctoral Comprehensive Examination, "Non-*Bacillus anthracis* *B. cereus* group-mediated anthrax," M Dempsey.
3. February 2005: New Orleans, La, American Academy of Forensic Sciences, "Select agent microbial forensic DNA identification techniques," SW Jones, RS Schoske, S Francesconi, L Cooper, M Dobson, R Crawford (presented by SW Jones).
4. March 2005: Orlando, Fla, Pittsburgh Conference on Analytical Chemistry and Spectroscopy, "Raman chemical imaging biothreat detection system," KS Kalasinsky, R Crawford, A Shea, S Vanni, P Treado, M Nelson, J Wolfe.
5. March 2005: Houston, Tex, Society of Armed Forces Medical Laboratory Scientists, "Preparation of performance standard test using humic acids," C Gagni, SC Francesconi, D Cepeda, W Thomas, K Ferebee, M Mathias, R Schoske, H St John, J Cullen, M Chrustowski, R Crawford.
6. March 2005: Jacksonville, Fla, SAFMLS 29th Annual Meeting, "Molecular differentiation of subpopulations comprising the two major *F. tularensis* subspecies, and a case for geographic variation," M Dempsey, M Dobson, C Zhang, M Zhang, C Lion, C Gutierrez Martin, P Iwen, D Niemeyer, R Crawford, S Hinrichs, A Benson.
7. April 2005: Copenhagen, Denmark, 15th European Congress on Clinical Microbiology and Infectious Diseases, "Real-time PCR identification of *Bacillus anthracis* strains containing PAG and CAPR genes using real-time," L Lukhnova, S Zakaryan, M Dempsey, L Cooper, M Dobson, T Hadfield.
8. May 2005: Pittsburgh, Penn, Mid-Atlantic Association of Forensic Sciences, "Evidentiary biological select agents and testing procedures," SW Jones, S Francesconi, M Dobson, R Crawford (presented by SW Jones).
9. June 2005: Atlanta, Ga, ASM 105th General Meeting, "Genomic markers associated with subspecies-specific and geographic-specific divergence and diversification of subpopulations comprising the two major *Francisella tularensis* subspecies," M Dempsey, M Dobson, C Zhang, M Zhang, C Lion, C Gutierrez Martin, P Iwen, D Niemeyer, R Crawford, S Hinrichs, A Benson.
10. June 2005: Atlanta, Ga, ASM 105th General Meeting, "Preparation of performance standard tests using humic acids," SC Francesconi, C Gagni, D Cepeda, W Thomas, K Ferebee, M Mathias, R Schoske, H St John, J Cullen, M Chrustowski, R Crawford.
11. July 2005: Las Vegas, Nev, Air Force Chemical, Biological, Radiological, Nuclear and Explosive Conference, "AFIP proficiency testing," R Schoske, J Cullen.
12. September 2005: Washington, DC, 230th American Chemical Society National Meeting, "Comparison of viable and non-viable *Bacillus anthracis* (anthrax) via Raman spectroscopy," KS Kalasinsky, A Shea, P Treado, M Nelson, T Powers.

13. September 2005: Dubrovnik, Croatia, International Forensic Genetic Meeting, "DNA assays for the detection, identification and individualization of select agent microorganisms," SW Jones, M Dobson, S Francesconi, R Crawford.
14. October 2005: Merida, Mexico, International Brucellosis Research Conference, "Role of B cells and antibodies in the control of *Brucella melitensis* infection," M.J Izadjoo, E Zelazowska, AK Bhattacharjee, MP Nikolich, RM Crawford, DL Hoover.
15. November 2005: Somerset, NJ, Eastern Analytical Symposium, "The role of infrared and Raman imaging in biological warfare detection," KS Kalasinsky.
16. December 2005: AFIP Weekly Professional Staff Conference, M Izadjoo, S Francesconi, U Gunasinghe.

RESEARCH

Journal Articles

1. Jones S, Dobson ME, Francesconi SP, Schoske R, Crawford R. DNA assays for the detection, identification and individualization of select agent microorganisms. *Croat Med J*. 2005;46:585-92.
2. Kalasinsky KS, Kalasinsky VF. Infrared and Raman microspectroscopy of foreign materials in tissue specimens. *Spectrochim Acta A Mol Biomol Spectrosc*. 2005;61:1707-13.
3. Paronavitana CM, Zelazowska E, Das R, Izadjoo M, Jett M, Hoover D. Identification of novel genes in the memory response to *Brucella* infection by cDNA arrays. *Mol Cell Probes*. 2005;19:341-8.
4. Paronavitana C, Zelazowska E, Izadjoo M, Hoover D. Interferon-gamma associated cytokines and chemokines produced by spleen cells from *Brucella*-immune mice. *Cytokine*. 2005;30:86-92.

Projects

1. Use of liposome or formulation with CpG DNA to enhance protective efficacy of lipopolysaccharide-based *Brucella* subunit vaccine in BALB/c mice: M Izadjoo.
2. Raman chemical imaging biothreat detection: KS Kalasinsky.
3. Infrared detection of biothreat materials: KS Kalasinsky.
4. Geographic differentiation of *Francisella tularensis* using molecular methods: M Dempsey.
5. Bioforensic Analysis Center FBI DNA Select Agent Inactivation Experiments Task #1: S Jones.
6. Bioforensic Analysis Center DNA Concentration Task #2 (literary portion): S Jones.
7. Development of real-time PCR analysis for identification of alphaviruses: B Zhang.
8. Microarray (nanogen) application for biothreat agents detection: array design, test and optimization: B Zhang.
9. Whole genome amplification for biothreat agents identification: B Zhang.
10. Purification of orthopox virus: S Cross.
11. Clinical specificity of the Joint Biological Agent Identification and Diagnostic System (JBAIDS)-Anthrax Detection System: J Hanson.
12. Bioforensic Analysis Center microbial nucleic acid and cell production: S Francesconi.
13. Bioforensic Analysis Center virological nucleic acid and cell production: S Cross.
14. Critical Reagent Program (CRP) nucleic acid production and research: S Francesconi.
15. Genetic characterization of CRP threat microorganisms using RiboPrinter®: M Dobson, M Izadjoo.
16. Real-time PCR assay testing and optimization using the RAZOR pathogen detection system.
17. Repository for poxviruses, alphaviruses, flaviviruses, and other viruses of value to DoD.
18. Whole genome amplification (WGA) of *Bacillus anthracis* genomic DNA followed by real-time PCR identification and quantification: B Zhang, R Crawford.

Collaborators

Military/Federal

1. Col Steve Putbrese, Laboratory Chief, Elemendorf AFB, Alaska, and Dr. Bernd Jilly, Alaska Public Health Laboratory Director: Alaskan wild-type *F. tularensis* isolate providers for project: geographic differentiation of *Francisella tularensis* using molecular methods.
2. CAPT James Burans, National Bioforensic Analysis Center, Department of Homeland Security, Frederick Md.

3. LCDR Patrick Rozmajzl, USN, Naval Medical Research Command, Department of Rickettsial Diseases, Forest Glen, Md.

Civilian

1. Dr. Steve Hinrichs, Dr. Paul Fey, Dr. Pete Iwen, University of Nebraska Medical Center: DNA preparation and proteomics.
2. Dr. Andy Benson, University of Nebraska, Lincoln: Comparative genomic hybridization (CGH) microarrays.
3. Dr. Paul Keim, Miles Stanley, Northern Arizona University: Worldwide *F. tularensis* strain collection and MLVA for geographic differentiation of *Francisella tularensis* using molecular methods.
4. Dr. Jacques Ravel, The Institute for Genomic Research (TIGR): comparative genomics bioinformatics and illustrations for geographic differentiation of *Francisella tularensis* using molecular methods.
5. Pat Treado, ChemImage Corporation, Pittsburgh, Penn: Raman chemical imaging bioterror detection.
6. Dr. Peter Griffiths, University of Idaho, Moscow: Infrared methods of analysis for increased signal response.
7. Dr. Jonathan Phillips, Walter Berger, Mitretek, Inc., Falls Church, Va.
8. Dr. Aurba Bhattacharjee, WRAIR, Silver Spring, Md: *Brucella* vaccine research.

International

1. Cesar Gutierrez Martin, Department of Animal Health, Facultad de Veterinaria, Leon, Spain: Contributor of Spanish *F. tularensis* DNA collection for geographic differentiation of *Francisella tularensis* using molecular methods.
2. Dr. Christine Lion, Laboratoire de Bacteriologie, Centre Hospitalier et Universitaire, Nancy, France: Contributor of French wild-type *F. tularensis* isolates for geographic differentiation of *Francisella tularensis* using molecular methods.

PROFESSIONAL ACTIVITIES

Official Trips

1. February 2005, Laurel, Md, to observe the environmental sampling of the Raman system at the Johns Hopkins Applied Physics Laboratory test bed for the RCIBD project, K Kalasinsky, A Shea.
2. February/March 2005, Boulder, Colo, to meet with collaborating laboratory for training at Thermo Biostar, S Francesconi, U Gunasinghe.
3. March 2005, Jacksonville, Fla, Annual Meeting of the Society of Armed Forces Medical Laboratory Scientists.
4. March 2005, Flagstaff, Ariz, to run RT-PCR analysis on worldwide *F. tularensis* DNA collection at Northern Arizona University, M Dempsey.
5. April 2005, Washington, DC, Joint Program Executive Office Meeting for Chemical Biological Defense Advance Planning Briefing for Industry, K Kalasinsky.
6. May 2005, Salt Lake City, Utah, to visit Idaho Technology, Inc. to run samples and analysis using the RAZOR pathogen detection system, S Francesconi, M Chrustowski, J Hanson, E Kurrle.
7. June 2005, Annual Meeting of the American Society of Microbiology, S Francesconi, M Dempsey, B Zhang.
8. June 2005, Lincoln, Neb, to attend CGH microarray training at the University of Nebraska, M Dempsey, B Zhang.
9. June 2005, Omaha, Neb, to attend MLVA training and perform analysis of *F. tularensis* DNA samples at the University of Nebraska Medical Center, M Dempsey.
10. August 2005, Flagstaff, Ariz, Bacterial Genotyping Symposium/Workshop, Paul Keim Genetics Lab, Northern Arizona University.
11. August 2005, Flagstaff, Ariz, Dangerous Pathogen Genotyping Symposium and Training, Northern Arizona University, M Dempsey, S Francesconi, R Crawford, M Chrustowski, J Jay.
12. September 2005, Almaty, Kazakhstan, Kazakh Scientific Center for Quarantine and Zoonotic Diseases, S Francesconi.
13. October/November 2005, Tashkent, Uzbekistan, to participate in field studies aimed at isolating plague from fleas and mice.

14. November 2005, Monterey, Calif, Biological Warfare Science and Technology Symposium, Naval Postgraduate School.

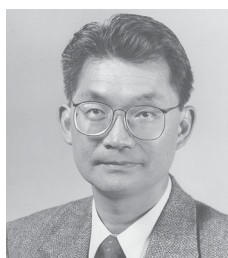
Manuscripts reviewed

1. *Applied Spectroscopy* (1), KS Kalasinsky
2. *Canadian Journal of Microbiology* (1), M Izadjoo

Editorial Boards

1. *Spectroscopy*, KS Kalasinsky
2. *Spectrochimica Acta Part A: Molecular Spectroscopy*, KS Kalasinsky

DIVISION OF MOLECULAR PATHOBIOLOGY



Shyh-Ching Lo, MD, PhD
Chief
Date of Appointment – 2 May 1991

STAFF

Medical

Shyh-Ching Lo, MD, PhD, Chief

Scientific

Shaw-Huey Feng, PhD, Immunologist/Scientist, ARP
Hyung-Yong Kim, PhD, Research Scientist, ARP
Bing-Jie Li, MD, Molecular Microbiologist, ARP
Tamara Newsome, MS, Research Microbiologist, ARP
Jose Rodriguez, Research Technician, ARP
Shien Tsai, PhD, Senior Research Scientist, ARP
Shimin Zhang, MD, PhD, Senior Research Scientist, ARP
Nianxiang Zou, PhD, Research Scientist, ARP

IMPACT

1. We continued to develop and characterize monoclonal antibodies that could differentiate between closely related *Burkholderia pseudomallei* and *Burkholderia mallei* and from other nonpathogenic *Burkholderia* bacteria.
2. We have prepared more mouse ascitic fluid monoclonal antibodies that could specifically recognize bacteria with major biothreat potential, such as *Bacillus anthracis*, *Yersinia pestis*, and *Francisella tularensis*. These reagents are critical in diagnosis or detection of infections by these biothreat agents.
3. We have successfully isolated more members from phage-displayed combinatorial human single-chain antibody (scFv) libraries that specifically recognize complex whole cell antigens of *Burkholderia* bacteria.
4. We have conducted many important preliminary studies on developing small molecules as potential therapeutics against various toxins and viral agent. These preliminary results are crucial for seeking external funding.
5. We published our study on *Mycoplasma penetrans* infections and seroconversion in patients with AIDS: Identification of major mycoplasmal antigens targeted by host antibody response.
6. In a collaborative study, our scientists helped identify androgen receptor mutations in recurrent prostate cancer.
7. Our microarray study on global gene expressions in mammalian cells that undergo malignant transformation following mycoplasmal infection has been accepted for

publication.

8. We are preparing for publication our study results on chronic infections with mycoplasmas that markedly enhance transcriptional function of steroid receptors.

EDUCATION

Training: The division supports the AFIP's educational program by providing lectures, courses, and training for visiting scientists, fellows, and students. We participate every summer in scientific education and training for high school and college students.

Presentations

1. April 2005: Washington, DC, AFIP Weekly Professional Staff Conference, "Passive antibody therapeutics," S-C Lo.
2. April 2005: Nanjing, China, Nanjing University Medical School, "Chronic mycoplasmal infections promote transcriptional activity of glucocorticoid receptor," S Zhang.

CONSULTATION

Studies: In addition to consultation support in electron microscopic and immunohistochemical diagnosis of unusual microbes for the Institute, division staff conduct molecular studies by amplifying ribosomal genes of bacteria and fungi for molecular identification and speciation. All consultations rendered by this division are reported with the Division of Infectious and Tropical Diseases Pathology.

RESEARCH

Journal Articles

1. Lo S-C, Wang RY-H, Grandinetti T, Zou N, Hayes MM, Shih JW-K, Wear DJ. Mycoplasma penetrans infections and seroconversion in patients with AIDS: identification of major mycoplasmal antigens targeted by host antibody response. *FEMS Immunol Med Microbiol.* 2005;44:277-82.
2. Chen G, Wang X, Zhang S, Lu Y, Sun Y, Zhang J, Li Z, Lu J. Androgen receptor mutants detected in recurrent prostate cancer exhibit diverse functional characteristics. *Prostate.* 2005;63:395-406.

Projects: The division maintained 5 active research projects in 2005:

1. Development of mouse hybridomas for production of monoclonal antibodies specific to *Burkholderia pseudomallei* and *Burkholderia mallei*.
2. Production of mouse ascitic fluid with monoclonal antibodies specifically against various biological warfare agents.
3. Effect of mycoplasmas on steroid receptor functions.
4. Development of Mabs as therapeutics against *Burkholderia pseudomallei* and *Burkholderia mallei*.
5. Mycoplasmal infection and immortalization of human peripheral blood mononuclear cells.

Our laboratory is actively seeking more external funding to develop therapeutic agents against smallpox virus, anthrax toxin, *Botulinum* toxins, and staphylococcal enterotoxins, the biothreat agents of most concern to the military and the nation.

Collaborators

Military

Naval Medical Research Institute, Silver Spring, Md.

Civilian

Clinical Center, NIH, Bethesda, Md.

PROFESSIONAL ACTIVITIES

Editorial Board

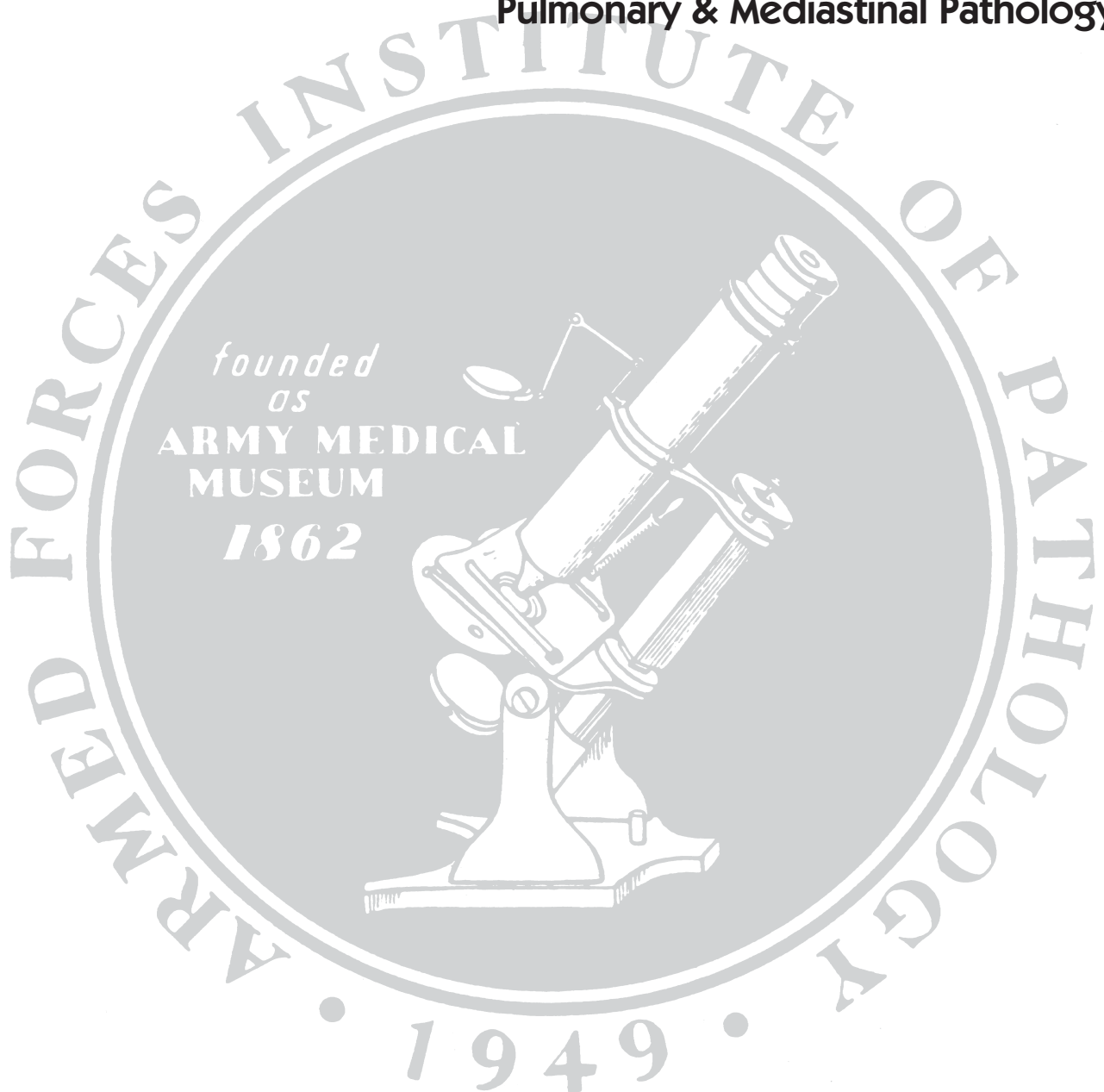
Methods in Cell Science, S-C Lo.

ADVANCED PATHOLOGY

GROUP 4

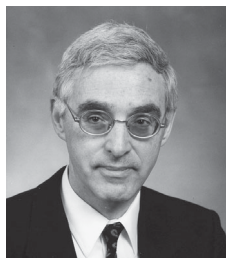
Hepatic & Gastrointestinal Pathology

Pulmonary & Mediastinal Pathology





Zachary D. Goodman, MD, PhD
Co-Chair
Date of Appointment — May 2004



Leslie H. Sobin, MD, SES
Co-Chair
Date of Appointment — May 2004

DEPARTMENT OF HEPATIC AND GASTROINTESTINAL PATHOLOGY

DIVISION OF HEPATIC PATHOLOGY



Zachary D. Goodman, MD, PhD
Chief
Date of Appointment – 1 January 1991

STAFF

Medical

Zachary D. Goodman, MD, PhD, Chief
Lionel Rabin, MD, Staff Pathologist
Anupamjit K. Mehrotra, MD, Staff Pathologist
Michael Armstrong, COL, MC, USA, Staff Pathologist
Douglas Grider, Lt Col, USAF, MC
Hala Makhoulf, MD, PhD, Research Staff Pathologist, ARP
Guanghua Wang, MD, Research Fellow
(A) Georgeta Giblen, MD, Callender-Binford Fellow

Scientific

Michelle Parks, Director of Morphometry Laboratory, ARP
(A) Hala Abdul-Al, MD, PhD, Research Associate

Administrative

Fanny X. Revelo, Administrative Officer
(A) Tara Butler, Office Assistant

IMPACT

In 2005 the division continued its tradition of collaboration with other federal agencies, academic medical centers, and industry to maximize our impact on the medical community. Participation in multicenter clinical trials sponsored by NIH and pharmaceutical companies has led to ever-increasing numbers of fruitful collaborations and publications, and has provided funding for intramural research. In education, the annual Hepatic Pathology Course was again highly successful, and members of the staff are frequently invited to speak at national and international meetings. The continuing flow of cases submitted for consultation shows that the division's reputation for diagnostic expertise remains undiminished.

CONSULTATION

<i>Cases</i>	<i>Completed</i>
Military	422
Army (211)	
Navy (109)	
Air Force (102)	
Federal	630
VA (623)	
USPH (7)	
Civilian	856
Interdepartmental	90
<hr/> Total	<hr/> 1,998

Most cases submitted to the division pose diagnostic problems for the contributing pathologist, particularly those that deal with medical diseases of the liver, such as chronic cholestatic disorders and steatohepatitis. Neoplasms represent only about 20% of consultation material. The division made no change in the contributor diagnosis in 640 cases (34%), minor changes in diagnosis in 884 cases (46%), and a major change in diagnosis in 153 cases (8%). In 225 cases (12%), the contributor submitted no diagnosis. Many cases are sent at the request of clinicians or patients for second opinions. The number of civilian cases declined by 22% from 2004, probably due to the increase in consultation fees, while military and federal cases increased by 2% from 2004. By contrast, civilian cases had steadily increased by 50% between 1997 and 2002, while military and federal cases increased by 66% in the same period and are currently at an all-time high. Overall, extramural consultations decreased by 10.3% compared to 2004, and the total number of cases is about equal to what was received in 2000.

EDUCATION

Courses: Members of the division participated in 3 non-AFIP courses, 1 nondepartmental AFIP course, and the 25th Annual Course in Hepatopathology, attended by 77 participants for 231 training days.

Departmental Conferences: Division staff conducted daily microscopic pathology conferences for the staff and rotating fellows and residents.

Trainees: The division provided training to 33 civilian and military pathologists and gastroenterology fellows, for a total of 1,195 training days.

Faculty Appointments

1. Clinical Professor, USUHS, ZD Goodman.
2. Adjunct Associate Professor, Georgetown University, ZD Goodman.
3. Adjunct Professor, Temple University, Philadelphia, Penn, L Rabin.
4. Professor, Ain Shams University School of Medicine, Cairo, Egypt, HR Makhlof.

Presentations

1. January 2005: Washington, DC, WRAMC, Department of Pathology, "Introduction to liver biopsy interpretation," ZD Goodman.
2. January 2005: Washington, DC, WRAMC, Department of Pathology, "Biopsy diagnosis of chronic hepatitis," ZD Goodman.
3. January 2005: Washington, DC, WRAMC, Department of Pathology, "Hepatic fibrosis, cirrhosis and preneoplastic lesions," HR Makhlof.
4. February 2005: McLean, Va, Fibrosis as an Endpoint for Clinical Trials in Liver Disease, sponsored by Duke University Medical Center and Beth Israel Deaconess Medical Center, "Timing and the dynamics of liver fibrosis and antifibrogenic agents," ZD Goodman.
5. February 2005: Washington, DC, AFIP Weekly Professional Staff Conference, "The role of liver biopsy in evaluation of fibrosis in liver diseases," HR Makhlof.
6. February 2005: Washington, DC, AFIP Weekly Professional Staff Conference, "Chronic hepatitis B," AK Mehrotra.
7. March 2005: Washington, DC, Georgetown University School of Medicine, Sophomore Pathology Course, "Introduction to liver disease" (4 lectures), ZD Goodman.
8. April 2005: Bethesda, Md, AFIP Anatomic Pathology Review and Update, "Inflammatory

diseases of the liver," ZD Goodman.

9. April 2005: Bethesda, Md, AFIP Anatomic Pathology Review and Update, "Tumors of the liver," ZD Goodman.
10. April 2005: Indianapolis, Ind, Indiana Association of Pathologists Annual Meeting, "Diseases of the liver: a slide seminar," ZD Goodman.
11. May 2005: Rome, Italy, Annual Meeting of the International Liver Pathology Study Group, "Steatohepatitis cases," ZD Goodman.
12. June 2005: Bordeaux, France, Annual Meeting of Laennec Hepatopathology Society, "Progression of fibrosis in advanced chronic hepatitis C," ZD Goodman.
13. July 2005: Cairo, Egypt, Ain Sham University, "Evaluation of hepatic fibrosis in needle biopsy," HR Makhoulf.
14. July 2005: Cairo, Egypt, Ain Sham University, "Barrett esophagus and premalignant lesions of the gastrointestinal tract," HR Makhoulf.
15. July 2005: Cairo, Egypt, Egyptian Society of Pathology, "Cirrhosis and precancerous lesions of the liver," HR Makhoulf.
16. September 2005: Bethesda, Md, AFIP/ARP Hepatopathology Course, "Introduction to liver pathology," "Biopsy diagnosis of hepatitis," "Biopsy diagnosis of cholestatic liver disease," "Drug-induced liver disease," ZD Goodman.
17. September 2005: Bethesda, Md, AFIP/ARP Hepatopathology Course, "Iron overload diseases," DJ Grider.
18. September 2005: Bethesda, Md, AFIP/ARP Hepatopathology Course, "Fibrosis, cirrhosis and pre-neoplastic lesions," HR Makhoulf.
19. September 2005: Bethesda, Md, AFIP/ARP Hepatopathology Course, "Tumors of the liver," AK Mehrotra.
20. September 2005: Bethesda, Md, AFIP/ARP Hepatopathology Course, "Representative cases," L Rabin.
21. September 2005: Alexandria, Va, Board Review in Gastroenterology sponsored by Washington Hospital Center, "Liver histopathology," ZD Goodman.
22. September 2005: San Antonio, Tex, Wilford Hall Air Force Medical Center, Department of Pathology, "Tumors of the liver," ZD Goodman.
23. September 2005: San Antonio, Tex, Wilford Hall Air Force Medical Center, Department of Pathology, "Inflammatory diseases of the liver," ZD Goodman.
24. October 2005: Washington, DC, AFIP VTC, "Vascular diseases of the liver," HR Makhoulf.

RESEARCH

Journal Articles

1. Ong JP, Elariny H, Collantes R, Younoszai A, Chandhoke V, Reines HD, Goodman Z, Younossi ZM. Predictors of nonalcoholic steatohepatitis and advanced fibrosis in morbidly obese patients. *Obes Surg*. 2005;15:310-5.
2. Vrettou E, Hytioglou P, Sikas N, Soultouyannis I, Goodman ZD. Hepatic adenocarcinoma expressing inhibin in a young patient on oral contraceptives. *Virchows Arch*. 2005;446:560-5.
3. Lok AS, Ghany MG, Goodman ZD, Wright EC, Everson GT, Sterling RK, Everhart JE, Lindsay KL, Bonkovsky HL, Di Bisceglie AM, Lee WM, Morgan TR, Dienstag JL, Morishima C. Predicting cirrhosis in patients with hepatitis C based on standard laboratory tests: results of the HALT-C cohort. *Hepatology*. 2005;42:282-92.
4. Hadziyannis SJ, Tassopoulos NC, Heathcote EJ, Chang TT, Kitis G, Rizzetto M, Marcellin P, Lim SG, Goodman Z, Ma J, Arterburn S, Xiong S, Currie G, Brosgart CL. Long-term therapy with adefovir dipivoxil for HBeAg-negative chronic hepatitis B. *N Engl J Med*. 2005;352:2673-81.
5. Younossi ZM, Gorreta F, Ong JP, Schlauch K, Giacco LD, Elariny H, Van Meter A, Younoszai A, Goodman Z, Baranova A, Christensen A, Grant G, Chandhoke V. Hepatic gene expression in patients with obesity-related non-alcoholic steatohepatitis. *Liver Int*. 2005;25:760-71.
6. Yeh MM, Buskell ZJ, Seeff LB, Strader D, Wright EC, Goodman ZD. More severe parenchymal injury in chronic hepatitis C acquired by recent injection drug use. *J Clin Gastroenterol*. 2005;39:722-7.
7. Younossi ZM, Baranova A, Ziegler K, Del Giacco L, Schlauch K, Born TL, Elariny H, Gorreta F, VanMeter A, Younoszai A, Ong JP, Goodman Z, Chandhoke V. A genomic and proteomic study of the spectrum of nonalcoholic fatty liver disease. *Hepatology*.

2005;42:665-74.

8. Makhlof HR, Abdul-Al HM, Goodman ZD. Diagnosis of focal nodular hyperplasia of the liver by needle biopsy. *Hum Pathol.* 2005;36:1210-6.

Abstracts

1. Auerbach A, Mehrotra A, Goodman Z, Apelian D, Wilber R. Correlation of hepatitis B surface antigen and hepatitis B core antigen immunohistochemical stains with serum HBV DNA and ALT in patients with chronic hepatitis B. *Mod Pathol.* 2005;18:274A.
2. Wang GH, Mehrotra A, Ong JP, Younossi ZM, Goodman Z. p62 as a reliable marker for Mallory bodies in nonalcoholic steatohepatitis. *Mod Pathol.* 2005;18:289A.
3. Baranova A, Collantes R, Schlauch K, Elariny H, Gowder S, Afendy A, Ong JP, Goodman Z, Chandhoke V, Younossi Z. Adiponectin gene expression in the intra-abdominal adipose tissue of patients with non-alcoholic fatty liver disease (NAFLD): diabetics vs. non-diabetics. *Gastroenterology.* 2005;128:A-704.
4. Pockros PJ, Jeffers L, Afdhal N, Goodman ZD, Nelson D, Gish R, Reddy R, Reindollar R, Rodriguez-Torres M, Faris-Young S, Sullivan S, Blatt LM. Final results of a double-blind, placebo-controlled trial of the antifibrotic efficacy of IFN gamma-1b in chronic hepatitis C patients with advanced fibrosis or cirrhosis. *Gastroenterology.* 2005;128:A-715.
5. Hadziyannis S, Tassopoulos N, Chang T, Heathcote J, Kitis G, Rizzetto M, Marcellin P, Lim SG, Goodman Z, Arterburn S, Xiong S, Borroto-Esoda K, Brosgart C, Currie G. Long-term adefovir dipivoxil treatment induces regression of liver fibrosis in patients with HBeAg-negative chronic hepatitis B: results after 5 years of therapy. *Hepatology.* 2005;42:754A.

Book Chapter

Goodman ZD, Ishak KG. Medical diseases of the liver. In: Silverberg S, DeLellis RA, Frable WJ, LiVolsi VA, Wick MR, eds. *Silverberg's Principles and Practice of Surgical Pathology and Cytopathology.* 4th ed. Philadelphia: Churchill Livingstone Elsevier; 2005:1467-1526.

Projects

1. The HALT-C Trial: a randomized controlled trial to evaluate the safety and efficacy of long-term peginterferon alfa-2a for treatment of chronic hepatitis C in patients who failed to respond to previous interferon therapy.
2. Morphometric analysis of progression of fibrosis in advanced chronic hepatitis C.
3. Evaluation of liver histology in clinical trials of entecavir for treatment of chronic hepatitis B infection.
4. Evaluation of liver histology in clinical trials of telbivudine for treatment of chronic hepatitis B infection.
5. Evaluation of liver histology in clinical trials of alpha thymosin for treatment of chronic hepatitis C infection.
6. Evaluation of liver histology in the PEDS-C Trial: pegylated interferon +/- ribavirin for children with hepatitis C.
7. Evaluation of liver histology in a multicenter study of the epidemiology of nonalcoholic fatty liver disease (Epi-NAFL).
8. The role of STATS activation in interferon alpha-mediated signaling in hepatitis C patients.
9. Evaluation of liver histology in multicenter assessment of liver disease in persons with chronic hepatitis B and HIV infection in the era of highly active antiretroviral therapy.

Collaborators

Military/Federal

NIH, NIDDK Liver Unit and NCI Laboratory of Pathology: HALT-C Trial.

Civilian (and Civilian/Military)

1. New England Research Institutes, University of Washington Laboratory of Virology, University of Massachusetts, Massachusetts General Hospital, St Louis University, University of Colorado, University of California at Irvine, University of Texas Southwestern, University of Southern California, University of Michigan, Medical College of Virginia Divisions of Gastroenterology/Hepatology and Departments of Pathology: HALT-C Trial.
2. Johns Hopkins University, University of Florida, Harvard University, University of Cincinnati, Georgetown University, Indiana University, Columbia University, University of California San Francisco, University of Pennsylvania: PEDS-C Trial.
3. Beth Israel Deaconess Medical Center (Harvard University), Division of Gastroenterology, and Intermune, Inc.: Progression of fibrosis in advanced chronic hepatitis C.

4. Bristol-Meyers Squibb Pharmaceutical Research Institute: Entecavir for treatment of chronic hepatitis B infection.
5. Idenix Pharmaceuticals: Telbivudine for treatment of chronic hepatitis B infection.
6. SciClone Pharmaceuticals: Alpha thymosin for treatment of chronic hepatitis C.
7. Inova Fairfax Hospital (Georgetown University) Center for Liver Disease: Multicenter study of the epidemiology of nonalcoholic fatty liver disease (Epi-NAFL).
8. Johns Hopkins University, Divisions of Gastroenterology and Infectious Diseases: Multicenter assessment of liver disease in persons with chronic hepatitis B and HIV infection in the era of highly active antiretroviral therapy.

PROFESSIONAL ACTIVITIES

Editorial Board

Annals of Diagnostic Pathology, ZD Goodman

DIVISION OF GASTROINTESTINAL PATHOLOGY



Leslie H. Sobin, MD, SES

Chief

Date of Appointment – 1 January 1991

STAFF

Medical

Leslie H. Sobin, MD, FRCPath, Chief; Director, Center for Scientific Publications

Michael A. Armstrong, COL, MC, USA, Staff Pathologist

Nancy S. Dow, LTC, MC, USA, Staff Pathologist

Douglas J. Grider, Lt Col, USAF, MC, Staff Pathologist

Anupamjit K. Mehrotra, MD, Staff Pathologist

(A) Georgeta Giblen, MD, Callender-Binford Fellow

Administrative

Mayra E. Aguilera, Secretary, ARP

Visiting Scientist

(D) Birgitte H. Federspiel, MD

IMPACT

The division's impact in consultation and education was impressive. The education mission was highlighted by:

- publication of 1 book chapter and 1 book;
- an impressive number of presentations by the staff;
- continued success of the highly acclaimed Annual Course on Endoscopic GI Tract Biopsies;
- participation in distance learning exercises with VTCs and video recordings for DVD production;
- the Virtual Gastrointestinal Endoscopic Biopsy Course, which provides CME credits; and
- medical school GI lecture series at USUHS and Georgetown University.

Research collaborations with the departments of Soft Tissue Pathology and Radiologic Pathology continued.

CONSULTATION

The total number of cases was 10% lower than in 2004, with the main decrease being in civilian cases (a reduction of 26%). Cases received represented primarily neoplastic and precancerous lesions, as well as inflammatory diseases. Among the relatively uncommon lesions that are unusually prominent in the division's accessions are carcinoids, gastrointestinal stromal tumors, lymphomas, appendiceal mucinous tumors, and surveillance biopsies for dysplasia in cases of ulcerative colitis and Barrett esophagus. The last of these is particularly frequent. Of the cases reported, 4.5% had no contributor diagnosis, 40% had a correct diagnosis, 54% had a minor, but significant, diagnostic change, and 1% had a major diagnostic change. Staff members also participate in the review of consultation cases in the Division of Hepatic Pathology. A GI radiology-pathology sign-out conference is held monthly.

<i>Cases</i>	<i>Completed</i>
Military	920
Army (464)	
Navy (219)	
Air Force (237)	
Federal	1,240
VA (1,233)	
USPHS (6)	
OFA (1)	
Civilian	890
Interdepartmental	169
Total	3,219

EDUCATION

Conferences: A daily divisional conference is held to review all gastrointestinal cases accessioned within the previous 24 hours. The conference serves as the major educational forum and is part of the quality assurance program. A gastrointestinal radiology-pathology conference is held monthly. The staff also attends the daily hepatic pathology review conference and the weekly hepatic clinical-pathologic conference. A monthly gastroenterology pathology correlation conference is held at WRAMC with AFIP staff and members of the WRAMC/NNMC gastroenterology program.

Courses: Staff members participated in the following courses in 2005 (approximately 2,300 man-hours of training):

- 15th Annual Anatomic Pathology Review Course.
- 16th Annual Course on Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract, LH Sobin, Director.
- The Virtual Gastrointestinal Endoscopic Biopsy Course provides CME credit for 40 cases on the AFIP website, <http://www.afip.org/Departments/edu/webed/vgi/hgss01/frameset3.html>.

Trainees: The division provided 1,195 training days of instruction for 33 trainees (gastroenterology fellows and pathologists), including 14 civilian and military federal (562 training days), 13 nonfederal (504 days), and 6 foreign national (129 days) trainees. Trainees generally attend for one-month periods.

Faculty Appointments

1. Professor of Pathology, USUHS, Bethesda, Md, LH Sobin.
2. Adjunct Professor of Pathology, Georgetown University Medical School, Washington, DC, LH Sobin.

Presentations

1. January 2005: Washington, DC, WRAMC, Pathology Department Conference (with video transmission to NNMC, Bethesda), "Unusual and difficult intestinal polyps," LH Sobin.
2. January 2005: Washington, DC, WRAMC, Department of Pathology, "Gastrointestinal stromal tumors," NS Dow.
3. February 2005: Washington, DC, WRAMC, Monthly Gastroenterology-Pathology Correlation Conference, "Cases of the month: Barrett esophagus and dysplasia," NS Dow.
4. March 2005: Washington, DC, AFIP Grand Rounds VTC, "Precancerous lesions of the GI tract and their imitators," LH Sobin.

5. April 2005: Washington, DC, Georgetown University Medical Center, "Pathology of the gastrointestinal tract, I – VI" (6 lectures to second-year medical students), LH Sobin.
6. April 2005: Bethesda, Md, 15th Annual Anatomic Pathology Course, "Gastrointestinal stromal tumors," M Armstrong.
7. April 2005: Bethesda, Md, 15th Annual Anatomic Pathology Course, "Gastric signet ring cell carcinoma," DJ Grider.
8. April 2005: Bethesda, Md, 15th Annual Anatomic Pathology Course, "Pitfalls in the diagnosis of intestinal polyps," LH Sobin.
9. April 2005: Bethesda, Md, 15th Annual Anatomic Pathology Course, "Non-neoplastic diseases of the lower gastrointestinal tract," AK Mehrotra.
10. April 2005: Bethesda, Md, 15th Annual Anatomic Pathology Review Course, "Barrett esophagus/dysplasia, lymphomas and carcinoids of the GI tract," NS Dow.
11. May 2005: Washington, DC, WRAMC, Monthly Gastroenterology-Pathology Correlation Conference, "Cases of the month: colon polyps," NS Dow.
12. May 2005: Washington, DC, Georgetown University Medical Center, Department of Pathology Residents Lecture, "Approach to the lower GIT biopsy," AK Mehrotra.
13. May 2005: Washington, DC, AFIP Professional Staff Conference, "Precancerous lesions of the GI tract and their imitators," LH Sobin.
14. June 2005: Wiesbaden, Germany, Laboratory Inspection Training Seminar, "Inspection techniques," DJ Grider.
15. August 2005: Bethesda, Md, NCI Pathology Seminar, "Pitfalls in the diagnosis of intestinal polyps," LH Sobin.
16. September 2005: Bethesda, Md, AFIP/ARP Course, Gastrointestinal Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract, "Precancerous lesions of the GI tract and their imitators," LH Sobin.
17. September 2005: Bethesda, Md, AFIP/ARP Course, Gastrointestinal Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract, "Unusual and difficult intestinal polyps," LH Sobin.
18. September 2005: Bethesda, Md, AFIP/ARP Course, Gastrointestinal Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract, "Gastrointestinal unknowns," LH Sobin.
19. September 2005: Bethesda, Md, AFIP/ARP Course, Gastrointestinal Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract, "GI stromal tumors: pitfalls in diagnosis," NS Dow.
20. September 2005: Washington, DC, WRAMC, Gastrointestinal Pathology-Gastroenterology Conference, "Esophageal and gastric unknowns," LH Sobin.
21. September 2005: Arlington, Va, Washington Hospital Center, Gastroenterology Board Review, "Pathology rounds," LH Sobin.
22. October 2005: Washington, DC, WRAMC, Gastrointestinal Pathology-Gastroenterology Conference, "Intestinal unknowns," LH Sobin.
23. November 2005: Washington, DC, WRAMC, Monthly Gastroenterology-Pathology Correlation Conference, "Cases of the month: gastric tumors," NS Dow.
24. November 2005: Bethesda, Md, USUHS, "Pathology of the gastrointestinal tract" (3 lectures to second-year medical students), LH Sobin.

RESEARCH

Journal Articles

1. Miettinen M, Sobin LH, Lasota J. Gastrointestinal stromal tumors of the stomach. A clinicopathologic, immunohistochemical, and molecular genetic study of 1765 cases with long-term follow-up. *Am J Surg Pathol*. 2005;29:52-68.
2. Edge SB, Sobin LH, Page DL, Gospodarowicz MK, Greene FL, Winchester DP. Re: "Colon cancer survival rates with the new American Joint Committee on Cancer sixth edition staging" [letter]. *J Natl Cancer Inst*. 2005;97:463-4.
3. Greene FL, Brierley J, O'Sullivan B, Sobin LH, Wittekind C. On the use and abuse of X in the TNM Classification. *Cancer*. 2005;103:647-9.
4. Levy AD, Quiles S, Miettinen M, Sobin L. Gastrointestinal schwannomas: CT features with clinicopathologic correlation. *Am J Roentgenol*. 2005;184:797-802.
5. Levy AD, Patel N, Dow N, Abbott RM, Miettinen M, Sobin LH. Abdominal neoplasms in patients with neurofibromatosis type 1: radiologic-pathologic correlation. *Radiographics*.

2005;25:455-80.

6. Levy AD, Taylor LD, Abbott RM, Sobin LH. Duodenal carcinoids: imaging features with clinicopathologic comparison. *Radiology*. 2005;237:967-72.
7. Miettinen M, Lasota J, Sobin LH. Gastrointestinal stromal tumors (GISTs) of the stomach in children and young adults: a clinicopathologic, immunohistochemical and molecular genetic study of 44 cases with long-term follow-up and review of the literature. *Am J Surg Pathol*. 2005;29:1373-81.
8. Seidman J, Mehrotra A. Benign ovarian serous tumors: a re-evaluation and proposed reclassification of serous "cystadenomas" and "cystadenofibromas". *Gynecol Oncol*. 2005;96:395-401.

Abstracts

1. Lasota J, Sobin LH, Miettinen M. True leiomyosarcomas of the gastrointestinal tract: a clinicopathologic and molecular genetic study of 43 cases. *Mod Pathol*. 2005;18:62A.
2. Miettinen M, Lasota J, Sobin LH. Gastrointestinal stromal tumors (GISTs) of the stomach in children and young adults: a study of 46 cases. *Mod Pathol*. 2005;18:68A.

Book

Wittekind CH, Greene FL, Hutter RVP, Klimpfinger M, Sobin LH. *TNM Atlas. Illustrated Guide to the TNM/pTNM Classification of Malignant Tumours*. 5th ed. Berlin: Springer; 2005.

Book Chapter

Emory TS, Sobin LH. Idiopathic inflammatory bowel disease. In: Iacobuzio-Donahue CA, Montgomery EA, eds. *Gastrointestinal and Liver Pathology*. Philadelphia: Churchill Livingstone; 2005:313-26.

Projects

1. Gastrointestinal stromal tumors (GISTs), clinicopathologic studies.
2. Follicular lymphoma of the GI tract, clinicopathologic study.
3. Proliferation, apoptosis, microsatellite instability, and cell adhesion molecules in neoplasms of the colorectum and appendix.
4. Neurogenic tumors of the GI tract, clinicopathologic study.
5. Gastrointestinal stromal tumors, radiologic-pathologic correlations.
6. Benign fibrous tumors and tumor-like lesions of the mesentery: radiologic pathologic correlations.
7. Brunner gland lesions, radiologic pathologic correlations.

Collaborators

Military/Federal

1. National Cancer Institute: Surveillance, Epidemiology, End Results (SEER) Program: International Classification of Diseases for Oncology and TNM/Prognostic Factors Classification and Cancer Staging.
2. CDC: TNM/Prognostic Factors Classification and Cancer Staging.
3. Naval Medical Center, San Diego: Differentiating primary gastric and colorectal signet ring cell carcinoma by mucin protein expression.
4. WRAMC, Division of Gastroenterology: Gastroenterology-pathology correlation conference (monthly). Civilian University of Southampton, UK: Proliferation, apoptosis, microsatellite instability, and cell adhesion molecules in neoplasms of the colorectum and appendix.

International

1. WHO: International Classification of Diseases for Oncology (ICD-O).
2. International Agency for Research on Cancer: WHO Classification of Tumors.
3. International Union Against Cancer (UICC): TNM/Prognostic Factors Classification and Cancer Staging.

PROFESSIONAL ACTIVITIES

Official Trips

1. May 2005, TNM-Prognostic Factors Project Committee Meeting, Geneva, Switzerland, LH Sobin (UICC).
2. June 2005, Bioscientia GmbH, CAP Laboratory Accreditation Inspection, Ingelheim,

- Germany, DJ Grider (team leader) (CAP).
3. September 2005, American Joint Committee on Cancer Annual Meeting, Chicago, Ill, LH Sobin (American College of Surgeons).
 4. November 2005, International Association for the Study of Lung Tumors Meeting on Lung Cancer Staging, London, UK, LH Sobin (International Association for the Study of Lung Tumors).
 5. December 2005, US Army MEDDAC Wuerzburg, CAP Laboratory Accreditation Inspection, Wuerzburg, Germany, DJ Grider (team member) (CAP).
 6. December 2005, Arztliches Laboratory, CAP Laboratory Accreditation Inspection, St Ingbert, Germany, DJ Grider (team leader) (CAP).

Editorships

LH Sobin:

1. Associate Editor, AFIP Atlas of Tumor Pathology, 4th Series
2. Associate Editor, AFIP/ARP Atlas of Nontumor Pathology
3. Coeditor, WHO Classification of Tumors: Pathology and Genetics of Tumors
4. Coeditor, TNM Classification of Malignant Tumors, 6th edition
5. Coeditor, Prognostic Factors in Cancer, 3rd edition
6. Editorial Board, *Annals of Diagnostic Pathology*



Teri J. Franks, MD
Chair
Date of Appointment – 8 March 2005

DEPARTMENT OF PULMONARY AND MEDIASTINAL PATHOLOGY

STAFF

Medical

Teri J. Franks, MD
Dennis L. Hayden, COL, MC, USA
Konstantin Shilo, MD
Allen Burke, MD (Visiting Scientist, University of Maryland)
Thomas Stocker, COL, MC, USA (Visiting Federal Scientist, USUHS)

Scientific

Paul Hartel, MD, Callender-Binford Fellow, Pulmonary Pathology
Negar Rassaei, MD, Callender-Binford Fellow, Pulmonary Pathology

Administrative

Tammie Winters, Administrative Officer
Kim Jones, Administrative Assistant

IMPACT

The Department of Pulmonary and Mediastinal Pathology is one of the world's foremost authorities on thoracic pathology. We provided key leadership in the 2002 ATS/ERS Classification of Idiopathic Interstitial Pneumonias, and the 2004 World Health Organization Classification of Tumours, *Pathology and Genetics: Tumours of the Lung, Pleura, Thymus and Heart*, published by the International Association for Research on Cancer in Lyon, France. Our department played a key role in the diagnosis of acute eosinophilic pneumonia in several fatal cases of severe respiratory illness observed in active duty military personnel in the Middle East war theater. Dr. Franks developed an AFIP Hot Topic on acute eosinophilic pneumonia that was distributed on the Web and provides up-to-date information on diagnosis to military physicians serving in the Middle East. We continue to monitor lung pathology in military personnel and their dependents, while trying to obtain support from the Army Surgeon General and Department of Health Affairs for this work.

CONSULTATION

Approximately 60% of our consultation cases are tumors and 40% are nonneoplastic thoracic disorders. We provide state-of-the-art consultative work for pathologists worldwide in pulmonary, pleural, and mediastinal pathology. We are the only pathology consultants who work very closely with a world-class thoracic radiologist and pulmonologist in providing complete clinicopathologic and radiologic consultation. Our work is highly military-relevant, and our international stature in the civilian realm is brought to bear on all of our military consultations.

In 2005, we made a minor change in diagnosis in 869 cases, a major change in diagnosis in 54 cases, and no change in 479 cases. We received 268 cases with no contributor diagnosis.

Cases	Completed
Military	249
Army (120)	
Navy (57)	
Air Force (72)	
Federal (VA)	744
Civilian	741
Interdepartmental	296
Total	2,030

Clinical Appointments

Consultant, Laboratory of Population Genetics, National Cancer Institute, Bethesda, Maryland, K Shilo.

EDUCATION

Courses

TJ Franks

1. Editor and cofounder, Hot Topics Web-based modules on emerging diseases, <http://www.afip.org/hot-topics.html>
2. Cofounder and consultant for development, AskAFIP Online Teaching Database, <https://www.askafip.org>

DL Hayden

1. Pulmonary Pathology Monthly Conference for Pulmonary Medicine Fellows, WRAMC.
2. Course codirector, 15th Annual Anatomic Pathology Review Course, AFIP.

Panels

TJ Franks

1. Particulate Matter Research Workshop, DoD-NIOSH Health Effects Laboratory, Morgantown, WV, September 6-7, 2005.
2. Workshop on Pulmonary Fibrosis in Hermansky-Pudlak Syndrome, Office of Rare Diseases-National Human Genome Research Institute, NIH, Bethesda, Maryland, November 16-17, 2005.
3. Workshop on Smoking-Related Interstitial Lung Disease, American Thoracic Society, University of Michigan, Ann Arbor, November, 19-20, 2005.

Trainees

Our department is well recognized as an international center for training in pulmonary pathology. Our resources provide a unique opportunity for fellowship training, which is a major priority of the department. During 2005, rotations through our department included 4 doctors from Howard University, 1 from West Virginia University, 1 from Indiana University, 2 from the University of Maryland, 2 from USUHS, 1 from Washington Hospital Center, 1 from the San Diego Naval Medical Center, 1 from Georgetown University, and 1 Red Cross Volunteer from India.

Faculty Appointments

Adjunct Assistant Professor of Medicine, Pulmonary and Critical Care Medicine Division, University of Maryland School of Medicine, Baltimore, Maryland, TJ Franks.

PRESENTATIONS

1. January 2005: Clarksburg, WV, Louis A. Johnson Veterans Affairs Medical Center, Pathology and Diagnostics Grand Rounds, "Viral pneumonia," P Hartel.
2. February 2005: AFIP, Weekly Professional Staff Conference, "Lung tumors: the 2004 WHO Classification," TJ Franks.
3. February 2005: WRAMC, Department of Pulmonary Medicine, "Infectious disease of the lung," DL Hayden.
4. April 2005: Washington, DC, WRAMC and National Naval Medical Center Departments of Pathology, "Lung tumors: the 2004 WHO Classification," TJ Franks.
5. April 2005: Washington, DC, WRAMC and National Naval Medical Center Departments of Pathology, "Selected lesions of the pleura," TJ Franks.

6. April 2005: Washington, DC, WRAMC and National Naval Medical Center Departments of Pathology, "Mediastinal pathology: compartmental approach," TJ Franks.
7. April 2005: Washington, DC, WRAMC and National Naval Medical Center Departments of Pathology, "Idiopathic interstitial pneumonia," TJ Franks.
8. April 2005: AFIP, 15th Annual Anatomic Review Course, "Selected lesions of the pleura," TJ Franks.
9. April 2005: AFIP, 15th Annual Anatomic Review Course, "Mediastinal pathology: compartmental approach," TJ Franks.
10. April 2005: AFIP, 15th Annual Anatomic Review Course, "Idiopathic interstitial pneumonia," TJ Franks.
11. April 2005: AFIP, 15th Annual Anatomic Review Course, "Classification of lung tumors," DL Hayden.
12. April 2005: AFIP, "AskAFIP: the foundation of medical education and education to the point of care," TJ Franks.
13. April 2005: Morgantown, WV, West Virginia University Department of Pathology Grand Rounds, "Idiopathic interstitial pneumonias," P Hartel.
14. September 2005: Morgantown, WV, Department of Defense-NIOSH Health Effects Laboratory, Particulate Matter Research Workshop, "Inhalation injury," TJ Franks.
15. October 2005: Taipei, Taiwan, Radiological Society of the Republic of China, Radiologic-Pathologic Correlation in Thoracic Imaging, "The changing face of lung cancer," TJ Franks.
16. October 2005: Taipei, Taiwan, Radiological Society of the Republic of China, Radiologic-Pathologic Correlation in Thoracic Imaging, "Mediastinal lesions: a compartmental approach," TJ Franks.
17. October 2005: Taipei, Taiwan, Radiological Society of the Republic of China, Radiologic-Pathologic Correlation in Thoracic Imaging, "Thoracic lesions: unknown case seminar," TJ Franks.
18. October 2005: Taipei, Taiwan, Taipei Veterans General Hospital, "Lung tumors: the 2004 WHO Classification," TJ Franks.
19. October 2005: Taipei, Taiwan, Taipei Veterans General Hospital, "Radiologic-pathologic unknown case seminar," TJ Franks.
20. October 2005: Washington, DC, Georgetown University Medical School, "Lung tumors: the WHO Classification," TJ Franks.
21. October 2005: Washington, DC, Georgetown University Medical School, "The idiopathic interstitial pneumonias," TJ Franks.
22. November 2005: Bethesda, Maryland, NIH, Office of Rare Diseases-National Human Genome Research Institute, "Pulmonary fibrosis in Hermansky-Pudlak syndrome," TJ Franks.

Poster Presentation

March 2005: San Antonio, Texas, Annual Meeting of US/CAP, "Comparative immunohistochemical analysis of mucoepidermoid and adenoid cystic carcinomas of pulmonary and salivary gland origin."

RESEARCH

Journal Articles

1. Lewis BS, Hubbard GB, Mense MG, Frost PA, Franks TJ. Congenital bronchioloalveolar airway malformation in a cynomolgus macaque (*Macaca fascicularis*). *J Med Primatol*. 2005;34:41-4.
2. Franks TJ. Congenital bronchioloalveolar airway malformation in a cynomolgus macaque (*Macaca fascicularis*). *J Med Primatol*. 2005;34:108.
3. Shilo K, Foss RD, Franks TJ, DePeralta-Venturina M, Travis WD. Pulmonary mucoepidermoid carcinoma with prominent tumor-associated lymphoid proliferation. *Am J Surg Pathol*. 2005;29:407-11.
4. Levy MM, Baylor MS, Bernard GR, Fowler R, Franks TJ, Hayden FG, Helfand R, Lapinsky SE, Martin TR, Niederman MS, Rubenfeld GD, Stewart TE, Styrt BA, Thompson BT, Harabin AL. Clinical issues and research in respiratory failure from severe acute respiratory syndrome. *Am J Respir Crit Care Med*. 2005;171:518-26. Epub 2004 Dec 10.
5. Fink JN, Ortega HG, Reynolds HY, Cormier YF, Fan LL, Franks TJ, Kreiss K, Kunkel S, Lynch D, Quirce S, Rose C, Schleimer R, Schuyler MR, Selman M, Trout D, Yoshizawa Y.

- Needs and opportunities for research in hypersensitivity pneumonitis. *Am J Respir Crit Care Med*. 2005;171:792-8. Epub 2005 Jan 18.
6. Abbott GF, Rosado de Christenson ML, Frazier AA, Franks TJ, Pugatch R, Galvin JR. Lymphoangioleiomyomatosis. *RadioGraphics*. 2005;25:803-28.
 7. Travis WD, Garg K, Franklin WA, Wistuba II, Sabloff B, Noguchi M, Kakinuma R, Zakowski M, Ginsberg M, Padera R, Jacobson F, Johnson BE, Hirsch F, Brambilla E, Flieder DB, Geisinger KR, Thunnissen F, Kerr K, Yankelevitz D, Franks TJ, Galvin JR, Henderson DW, Nicholson AG, Hasleton PS, Roggli V, Tsao MS, Cappuzzo F, Vazquez M. Evolving concepts in the pathology and computed tomography imaging of lung adenocarcinoma and bronchioloalveolar carcinoma. *J Clin Oncol*. 2005;23:3279-87.
 8. Fukuoka J, Franks TJ, Colby TV, Flaherty KR, Galvin JR, Hayden DL, Gochuico BR, Kazerooni EA, Martinez F, Travis WD. Peribronchiolar metaplasia: a common histologic lesion in diffuse lung disease and a rare cause of interstitial lung disease: clinicopathologic features of 15 cases. *Am J Surg Pathol*. 2005;29:948-54.
 9. Lettieri CJ, Veerappan GR, Parker JM, Franks TJ, Hayden D, Travis WD, Shorr AF. Discordance between general and pulmonary pathologists in the diagnosis of interstitial lung disease. *Resp Med*. Epub 2005 April 21.
 10. Chang YC, Yu CJ, Chang SC, Galvin JR, Liu HM, Hsiao CH, Kou PH, Chen KY, Franks TJ, Huang KM, Yang PC. Pulmonary sequelae in convalescent patients after severe acute respiratory syndrome: evaluation with thin-section CT. *Radiology*. 2005 Jul 29; [Epub ahead of print].
 11. Shilo K, Foss RD, Franks TJ, Deperalta-Venturina M, Travis WD. Pulmonary mucoepidermoid carcinoma with prominent tumor-associated lymphoid proliferation. *Am J Surg Pathol*. 2005;29:407-11.

Abstracts

1. Franks TJ, Colby TV, Travis WD, Galvin JR. Dyspneic cigarette smokers: spectrum of findings. *J Thorac Imaging*. 2005;20:129-71, C71.
2. Galvin JR, Franks TJ. Organizing pneumonia: a pathway to fibrosis. Fleischner Society, Lucca, Italy, May 12, 2005.
3. Fukuoka J, Dracheva T, Shih JH, Hewitt SM, Shilo K, Franks TJ, Travis WD, Jen J. Desmoglein 3 as a prognostic indicator in lung cancer. IASLC, 11th World Conference on Lung Cancer, Barcelona, Spain, July 3-6, 2005.
4. Shilo K, Foss RD, Franks TJ, Travis WD. Comparative immunohistochemical analysis of mucoepidermoid and adenoid cystic carcinomas of pulmonary and salivary gland origin. *Mod Pathol*. 2005;18:318A.
5. Hartel PH, Jackson J, Ducatman B, Zhang P. CD99 immunoreactivity in atypical fibroxanthoma and malignant fibrous histiocytoma: a useful diagnostic marker. *Arch Pathol Lab Med*. 2005;129:547-76.

Book Chapter

Centeno JA, Mullick FG, Ishak KG, Franks TJ, Burke AP, Koss MN, Perl DP, Tchoundwo PB, Pestaner JP. Environmental pathology. In: Selinus O, ed. *Essentials of Medical Geology: Impacts of the Natural Environment on Public Health*. London: Elsevier Academic Press; 2005:563-94.

Web Publication

Hartel PH, Parsons J, Canfield P. A 35-year-old female with right pneumothorax. Internet Interactive Case Study, Department of Pathology, West Virginia University, 2005.

Projects

In 2005 the department maintained 14 research protocols:

1. Analysis of lung cancer using tissue microarray.
2. Lymphangioleiomyomatosis.
3. Localized fibrous tumor of the pleura.
4. Neuroendocrine tumors of the lung.
5. Immunohistochemical staining for p53, PDGF, and p16 antibodies in malignant mesotheliomas and atypical mesothelial hyperplasia.
6. Inflammatory pseudotumor of the lung: a clinicopathologic study of 75 cases.
7. Pulmonary sclerosing hemangioma.
8. Chronic fibrosing pleuritis, atypical mesothelial hyperplasia, and desmoplastic mesothelioma.
9. Molecular biology of lung cancer.

10. Histologic analysis and immunohistochemical staining profile of pleuropulmonary blastoma.
11. Use of immunohistochemistry in determination of primary sites for carcinoma presenting in the mediastinum and separation of thymoma from atypical thymoma and thymic carcinoma.
12. Correlation of pulmonary, mediastinal and pleural pathologic findings with radiologic studies.
13. Lung pathology of severe acute respiratory syndrome (SARS).
14. ILD in military and veterans compared to civilian patients.

Collaborators

Military/Federal:

1. NIH/National Heart Lung and Blood Institute: Lymphangioleiomyomatosis and interstitial lung disease.
2. NIH/Office of Rare Diseases: Hermansky-Pudlak syndrome.
3. NIH/National Cancer Institute: Molecular biology of lung cancer.

Civilian:

1. Brompton Hospital, London, England: Neuroendocrine lung tumors.
2. University of Grenoble, France: Molecular biology of lung cancer, neuroendocrine lung tumors.
3. Memorial Sloan Kettering Cancer Center, New York, NY: Neuroendocrine tumors.
4. Toyama University Hospital, Toyama, Japan: Neuroendocrine and non-small cell carcinoma.
5. University of Wurzburg, Germany: Thymic neuroendocrine tumors.
6. Mayo Clinic: Molecular biology of lung cancer, neuroendocrine lung tumors, interstitial lung disease.
7. University of Southern California, Los Angeles: Interstitial lung disease.
8. University of California, San Francisco: Interstitial lung disease.
9. University of Iowa: Interstitial lung disease.
10. University of Colorado: Interstitial lung disease.
11. Kyoto University, Japan: Interstitial lung disease.
12. University of Michigan, Ann Arbor: Interstitial lung disease.

PROFESSIONAL ACTIVITIES

Awards

Alpha Omega Alpha Honor Medical Society, Gamma Chapter, Michigan State University, TJ Franks.

Official Trips

1. July 2005, National Heart, Lung, and Blood Institute, Special Emphasis Panel, NIH Grant Review: HIV and Lung, TJ Franks.
2. September 2005, DoD-NIOSH Health Effects Laboratory, Particulate Matter Research Workshop, Morgantown, WV, TJ Franks.
3. November 2005, Workshop on Pulmonary Fibrosis in Hermansky-Pudlak Syndrome, Office of Rare Diseases-National Human Genome Research Institute, NIH, Bethesda, Maryland, TJ Franks.
4. November 2005, American Thoracic Society, Workshop on Smoking-Related Interstitial Lung Disease, University of Michigan, Ann Arbor, TJ Franks.

Editorial Boards

TJ Franks

1. US/CAP Abstract Review Board (2002 to present)
2. Archives of Pathology and Laboratory Medicine

Appointments

Director, ARP/NIH Pulmonary Pathology Fellowship Training Program, AFIP, TJ Franks.

DIRECTORATE OF FIELD OPERATIONS

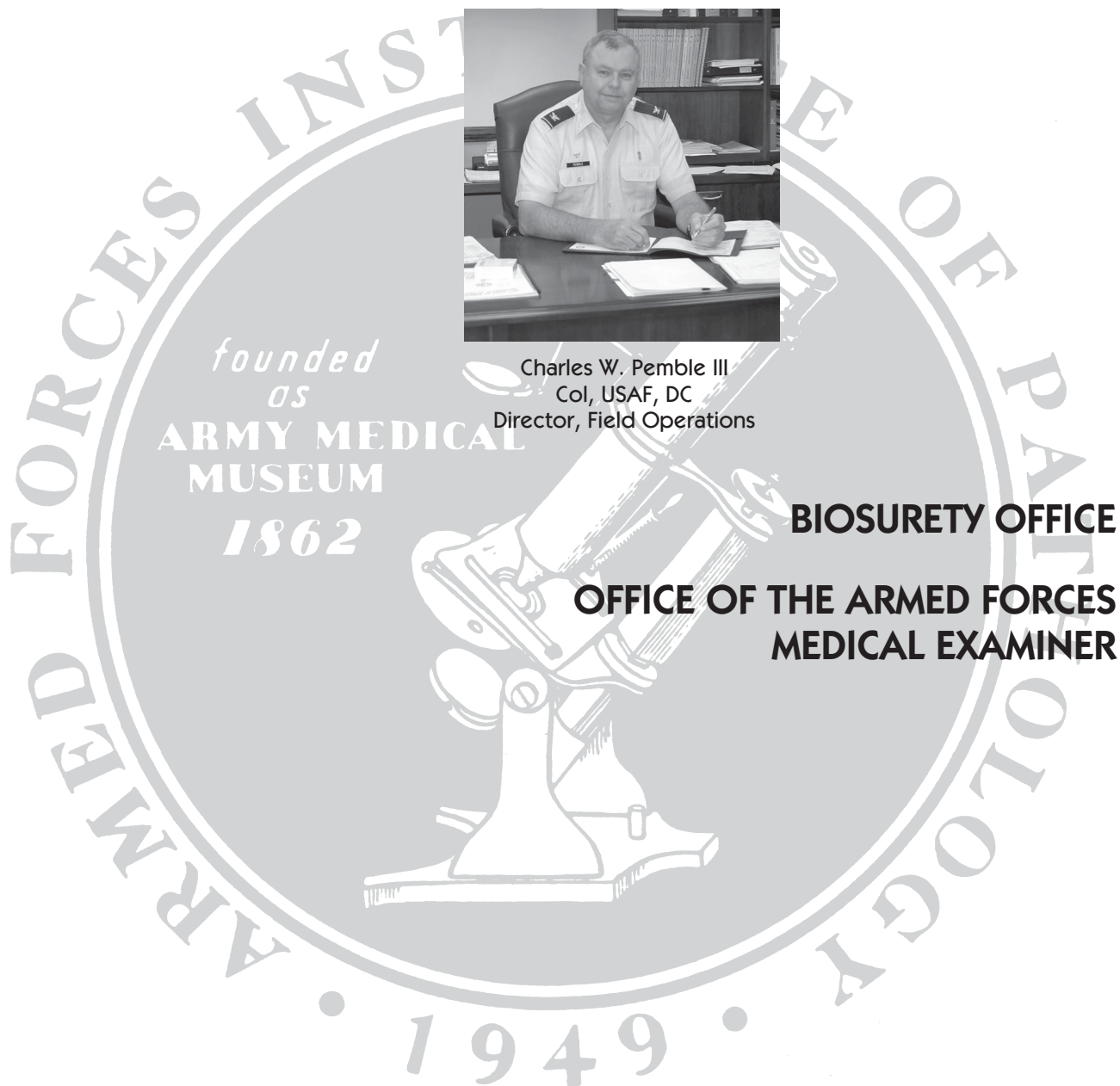


Charles W. Pemble III
Col, USAF, DC
Director, Field Operations

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BIOSURETY OFFICE

**OFFICE OF THE ARMED FORCES
MEDICAL EXAMINER**





Charles W. Pemble III, Col, USAF, DC
Director, Field Operations
Date of Appointment — 28 January 2002

DIRECTORATE OF FIELD OPERATIONS

STAFF

Mark Vojtecky, Lt Col, USAF, MSC, Administrative Officer

IMPACT

The directorate provides:

- Staff coordination for operational readiness planning, mobilization, and training.
- Facilitates delivery of maximum medicolegal and forensic science support from the AFIP to US Army and DoD operations.
- Enhancement of the OAFME and supporting pathology processes that contribute to medicolegal investigations, environmental and infectious disease threat assessment, and implementation of field-focused support and assistance through the departments of Veterinary Pathology and Telepathology.

The directorate also ensures regulatory compliance with the Institute's Biosurety program in the use and transfer of biological select agents and toxins, in support of basic and applied biologic research projects.

OFFICE OF BIOSURETY

ORGANIZATION

The Office of Biosurety is organized under the Directorate of Field Operations.

1. Biosurety Officer, Mark Haley
2. Responsible Official, Charles Pemble, Col, USAF
3. Alternate Responsible Official, Mary Klassen-Fischer, MD

IMPACT

The Office of Biosurety is responsible to the Director of Field Operations for managing AFIP's Biosurety Program and ensuring all requirements are met as established by DoD directives, Code of Federal Regulations, US Army Medical Command (MEDCOM), and the Army Biosurety Program. The Biosurety Program is also responsible for meeting all CDC and USDA requirements for storage and use of all Biological Select Agents and Toxins (BSATs). The Office of Biosurety controls and monitors access to areas where BSATs are stored and used. While biological security is not new, the application of the Biosurety Program establishes a safe, secure and reliable working environment for assigned personnel and visitors, and safeguards biological assets in support of AFIP's mission.

ACCOMPLISHMENTS

1. Implemented a Biosurety Plan and Standard Operating Procedures for the AFIP IAW with DoD directive 5210.ff, draft AR 50-X, and 7 CFR Part 331, 9 CFR Part 121, and 42 CFR Part 73.
2. Refined integration of the Biosurety Program into the Physical Security Committee, creating a Physical Security/Biosurety Committee to advise and inform the Institute on issues of biosurety and safeguarding BSATs, and to continually monitor activities of the Biosurety Program for full compliance with all regulations and guidelines.
3. Implemented the AFIP's Biological Personnel Reliability Program IAW AR 50-X to ensure that all personnel meet all reliability and security checks before accessing BSATs.
4. Assured AFIP's import/transfer permit program continued to meet all regulations and guidelines set forth by the USDA and the CDC for the import and transfer of BSATs.
5. Passed a rigorous CDC inspection that led to renewal of the Registration Certificate authorizing the possession, use, transfer, and storage of BSATs as part of the AFIP Biosurety Program.
6. Passed CDC laboratory inspections for reapproval of newly renovated laboratories N4504 as a Biosafety Level 3 and S5311 as an Animal Biosafety Level 3.
7. AFIP was the first DoD facility to undergo a Department of the Army Inspector General unrated inspection of the department's newly established Biosurety Program.



Craig T. Mallak, CDR, MC, USN
Armed Forces Medical Examiner
Date of Appointment – 12 June 2002

THE ARMED FORCES MEDICAL EXAMINER SYSTEM (AFMES)

STAFF

Medical

- Craig T. Mallak, CDR, MC, USN, Armed Forces Medical Examiner
- (D) Elizabeth Rouse, Maj, USAF/FS, MC, Assistant Medical Examiner
- Brion C. Smith, COL, DC, USA, Chief Deputy Medical Examiner, DoD DNA Registry
- James L. Caruso, MD, FS/DMO, CDR, MC, USN, Chief Deputy Medical Examiner
- (D) Stanley D. Adams, CDR, USN, Fellow
- Gerald F. Donovan, LCDR, MC, USNR, Deputy Chief Medical Examiner, Behavioral Science Division
- Susan L. Hanshaw, Lt Col, USAFR, NC, Forensic Nurse Investigator
- Louis N. Finelli, DO, MAJ, MC, USA, Deputy Medical Examiner
- Dzuy T. Nguyen, MAJ, USAF, MC, Associate Medical Examiner
- Stephen L. Robinson, CAPT, MC, USN, Deputy Medical Examiner
- (D) Michael E. Smith, MAJ, MC, USA, Deputy Medical Examiner
- Lisa Pearce, MAJ, MC, USA, Director, Mortality Surveillance Division
- Stanley D. Adams, CDR, USN, Regional Medical Examiner (San Diego, Calif)
- Eric Berg, LTC, MC, USA, Regional Medical Examiner (Ft Campbell, Ky)
- James Feig, Maj, USAF, MC, Regional Medical Examiner (San Antonio, Tex)
- James W. Green, CAPT, MC, USN, Regional Medical Examiner (Portsmouth, Va)
- Jerry J. Hodge, DO, CDR, MC, USN(FS), Regional Medical Examiner (Okinawa)
- Kathleen Ingwersen, LTC, MC, USA, Regional Medical Examiner (Landstuhl, Germany)
- Carl C. Stacy, COL, MC, USA, Regional Medical Examiner, (Ft Hood, Tex)

Scientific

- William C. Rodriguez, III, PhD, Chief Deputy Medical Examiner, Special Investigations, Forensic Anthropology, Distinguished Scientist

Administrative

- Mark Vojtecky, Lt Col, USAF, Administrator
- Jonathan Shane, SMSgt, USAF, Administrative Superintendent
- Julia Andrews, LTJG, USN, Operations Officer
- Robert Veasey, Operational Administrator/Investigator
- (A) Shawn Christian, SA, USA, CID
- (D) Phillip Curran, SA, USA, CID
- (A) Fred Upchurch, Operation Specialist
- (A) Penny Rodriguez, Operation Specialist
- Joyce White, Executive Administrator
- (D) Carolyn Allen, BS, Administrative Assistant, ARP
- Robin Howard, Administrative Assistant, Anteon
- Allison Parker, Administrative Assistant, Anteon
- Yvonne Rodgers, Administrative Assistant, Anteon
- (A) Monique Williams, Administrative Assistant, Anteon

Paul A. Kerr, PHC, USN, Chief Forensic Photographer
 (D) Brenda G. Corrao, HM2, USN, Forensic Photographer
 Michael Godwin, TSgt, USAF, Administrative Assistant
 Tiffany D. McCorkle, SSgt, USAF, Forensic Photographer
 (D) Lolita Lewis, PH3, USN, Forensic Photographer
 Kimberly E. Meadows, HM2, USN, Photographer

ORGANIZATION

The Armed Forces Medical Examiner (AFME) performs the executive functions of the AFMES. Administrative and fiscal functions are provided, as well as oversight of the 6 OAFME divisions, and regional and associate medical examiner functions and responsibilities under the AFMES.

- **Medicolegal Investigations and Operations (OPS)** – JL Caruso. Responsible for day-to-day AFMES death investigation operations in support of worldwide forensic consultations and onsite investigations, including aircraft accidents.
- **Education and Research** – SL Robinson, S Luzi. Coordinates and facilitates all departmental education and research efforts, including fellowship and residency programs sponsored by military and civilian educational institutions.
- **Special Investigations** – WC Rodriguez III. Responsible for anthropological investigation and consultation for the AFMES. Also maintains the Trace Materials Analysis Laboratory to aid the AFMES in identification of materials associated with medicolegal investigations.
- **Forensic Toxicology** – Aaron Jacobs, COL, MS, USA. Provides toxicology laboratory testing and consultation for AFMES investigations and for the DoD Drug-testing Quality Assurance Program. Also provides education and research for this discipline. The division is organized into 4 branches: DoD Drug Testing Branch; Forensic Toxicology Branch; Research and Education Branch; and Quality Assurance Branch.
- **DoD DNA Registry** – BC Smith. Encompasses the Armed Forces DNA Identification Laboratory (AFDIL), which is responsible for DNA-based identification of human remains for the OAFME, and for performing consultation, education, and research in the area of forensic DNA analyses. The division also maintains the Armed Forces Repository of Specimen Samples for the Identification of Remains for the DoD.
- **Mortality Surveillance Division (MSD)** – Lisa Pearse, MAJ, MC, USA. The MSD expanded from a single member in 2001 to a staff of 15 this past year in recognition of the vital information they provide to all levels of the DoD and federal government. The motto of this division, “Honoring the dead, protecting the living,” is the guiding principle for the entire medical examiner system. The division’s primary purpose is to perform active surveillance to monitor all active duty deaths. Active surveillance is necessary to quickly identify those deaths that require autopsy by the AFMES, those that could require a public health response, or those that could be the result of a bioterrorist act. If a death has an infectious etiology, the MSD will take timely and appropriate steps to ensure that the agent or agents responsible are identified. As information is collected, it is stored in the Medical Mortality Registry for analysis and reporting of medical cause-specific mortality data, including trends. The division has also had an operational role in tracking and trending OIF-related deaths, GWOT workload, and autopsy specimen identifications. Finally, the division produces death certificates for all fatalities autopsied by AFMES staff at Dover AFB.
- **Psychological investigations** – GF Donovan heads this new division. Psychological investigations are mandated under DoDI 5154.30 when there is a question as to the cause or manner of death. The division will investigate these cases and others that require this subspecialty.

IMPACT

The department is primarily responsible for multidisciplinary forensic (medicolegal) investigations of unnatural or violent deaths due to known or suspected accident, homicide, suicide, or undetermined means. In these cases, the AFMES must establish positive identity by scientific means, determine the cause and manner of death, and certify the death. This responsibility normally applies to 1) members of the Armed Forces on active duty or on active duty for training, and 2) civilians, including dependents of military members, whose deaths come under exclusive federal jurisdiction.

Deaths investigated include, but are not limited to, the following categories:

1. Unnatural or violent deaths from known or suspected accident, homicide, suicide, or

- undetermined means.
- Deaths related to the occupation or employment of the deceased and deaths of individuals enrolled in the Personnel Reliability Program.
 - Deaths related to vehicular, aircraft, or vessel accidents.
 - Sudden and unexpected deaths in which the cause is not readily apparent.
 - Deaths potentially related to diseases that might constitute a threat to the public health.
 - Deaths occurring in an individual who is in the custody of law enforcement officials.
 - When the commander of a Military Medical Treatment Facility (MMTF) where the death occurred, or the decedent's commander in the grade of O-4 or higher, notifies the AFMES that a medicolegal investigation on a military member is necessary for reasons of US national security or for the protection of the military community.

The department reviews cases in consultation and conducts onsite medicolegal investigations, providing consultative as well as diagnostic services to the DoD and other federal and nonfederal agencies. In addition, when requested and approved by higher authority, these services may be extended to foreign governments.

CONSULTATION

<i>Cases</i>	<i>Completed</i>
Consults	731
Autopsies	1,210
Total	1,941

Consultants

- WC Rodriguez III:**
- Chief Forensic Anthropological Consultant, State of Maryland and District of Columbia.
 - Chief Consultant, FBI Forensic Science Training Unit, FBI Child Abduction and Serial Killer Unit.
 - Co-Director, FBI Evidence Response Team Field Course: Search and Recovery of Decomposed and Skeletonized Remains Evidence Response Team. FBI National Training Academy, Quantico, Va.

Deployments

AFMES teams deployed on over 160 medicolegal missions involving onsite investigations.

Non-OIF/OEF

January 2005

WRAMC, E Rouse
Wilford Hall Medical Center, Lackland AFB, Tex, J Feig
Naval Medical Center, San Diego, Calif, SD Adams (3)
Brooke Army Medical Center, San Antonio, Tex, J Feig
Ft Polk, La, J Feig, SL Robinson
Fort Campbell, Ky
Ft Benning, Ga, J Feig
Columbia, SC, E Berg

February 2005

Ft Bragg, NC, JL Caruso
San Diego, Calif, SD Adams (4)
Ft Rucker, Ala, J Feig
Ft Stewart, Ga, ME Smith (2)
Great Lakes, Ill, DT Nguyen
Seoul, Korea, ME Smith
Okinawa, Japan, ME Smith

March 2005

Seoul, Korea, JJ Hodge (2)
Ft Bragg, NC, JL Caruso (2)
Landstuhl, Germany, K Ingwersen
Oklahoma City, Okla, CT Mallak

Jackson, Miss, SL Robinson
 Ft Campbell, Ky, E Berg (2)
 Ft Polk, La, DT Nguyen

April 2005

Ft Stewart, Ga, JL Caruso
 Okinawa, Japan, JJ Hodge
 Ft Bragg, NC, JW Green
 Camp Lejeune, NC, JW Green (2)
 Ft Campbell, Ky, E Berg (2)
 Landstuhl, Germany, K Ingwersen
 San Diego, Calif, SD Adams (2)
 Brooke Army Medical Center, Tex, J Feig
 New Orleans, La, Dr. Liuzza
 Ft Riley, Kan, JL Caruso (2)
 Bethesda, Md, ME Smith

May 2005

Brooke Army Medical Center, San Antonio, Tex
 Ft Jackson, SC, JW Green
 Albuquerque, NM
 San Diego, Calif, SD Adams
 Bethesda, Md, S Luzi

June 2005

Nellis AFB, Nev, Dr. Campman
 Ft Bragg, NC, JL Caruso (3), SL Robinson
 Ft Campbell, Ky, E Berg
 San Diego, Calif, SD Adams (2)
 Ft Benning, Ga, J Feig, JW Green
 Bethesda, Md, S Luzi
 Ft Sill, Okla, Dr. Quinn
 Camp LeJeune, NC, CDR Monaghan
 Ft Hood, Tex, CC Stacy
 Ft Rucker, Ala, JW Green
 Ft Riley, Kan, J Feig

July 2005

Ft Benning, Ga, JW Green
 Kansas City, Mo, SD Adams, SL Robinson
 Ft Bragg, NC, DT Nguyen
 WRAMC, LCDR Solomon (2)
 Camp LeJeune, NC, JW Green
 Ft Carson, Colo, J Feig
 Ft Hood, Tex, CC Stacy
 San Diego, Calif, Dr. Campman, SD Adams
 Ft Lewis, Wash, SD Adams
 Ft Campbell, Ky, E Berg
 Ft Knox, Ky, E Berg
 Portsmouth, Va, JW Green
 Ft Polk, La, ME Smith
 Ft Riley, Kan, J Feig

August 2005

Whiteman AFB, Mich, JL Caruso
 Ft Sill, Okla, J Feig
 Bethesda, Md, DT Nguyen, E Rouse, S Luzi
 Ft Leonard Wood, Mo, E Berg
 Elmendorf, AFB, Alaska, Dr. Ensign
 Ft Jackson, SC, ME Smith
 Ft Gordon, Ga, ME Smith

Camp Lejeune, NC, E Berg
Scott AFB, Ill, J Feig
Ft Campbell, Ky, Dr. Weppler, E Berg
Ft Bragg, NC, Dr. Reardon
Tripler AMC, Hawaii, Dr. Belnap, CT Mallak
Ft Polk, La, S Luzi, JW Green, ME Smith
San Diego, Calif, SD Adams (4)
Ft Carson, Colo, J Feig
Ft Bliss, Tex, SD Adams

September 2005

Nellis AFB, Nev, SD Adams
Ft Lewis, Wash, Dr. Campman
Ft Bragg, NC, Dr. Reardon
Landstuhl, Germany, K Ingwersen
Jacksonville, Fla, ME Smith, CPT Berran
Ft Riley, Kan, E Berg
Ft Gordon, Ga, ME Smith

October 2005

Camp Lejeune, NC, JW Green (3), CDR Monaghan
WRAMC, CPT Berran (2)
Tripler AMC, Hawaii, SD Adams
Jacksonville, Fla, JL Caruso
Ft Stewart, Ga, ME Smith
Portsmouth, Va, JW Green
San Diego, Calif, SD Adams (2)
Bethesda, Md, CPT Berran
Ft Campbell, Ky, E Berg
Landstuhl, Germany, K Ingwersen

November 2005

Brooke AMC, Tex, J Feig
Ft Stewart, Ga, ME Smith (2)
WRAMC, CDR Reedy
San Diego, Calif, SD Adams
Ft Bragg, NC, JW Green
Landstuhl, Germany, K Ingwersen
Ft Benning, Ga, DT Nguyen, CPT Berran
Ft Gordon, Ga, ME Smith
Ft Sill, Okla, J Feig

December 2005

San Diego, Calif, SD Adams (7)
Ft Bragg, NC, ME Smith, JW Green
Ft Campbell, Ky, E Berg
Landstuhl, Germany, K Ingwersen (2)
WRAMC, S Luzi, CDR Reedy

Medical Examiners also deployed to Dover AFB more than 200 days in 2005 to account for and investigate the deaths of over 850 service members who died while serving in support of Operation Iraqi Freedom and Operation Enduring Freedom.

The AFMES accessioned 201 diagnostic consultation cases during 2005. The majority of consultations were submitted by or in conjunction with the military services investigative agencies (NCIS, CID, or OSI) as part of a medicolegal investigation. The remainder of the contributors were military pathologists and other federal agencies such as the Department of Justice, the FBI, and the Department of Labor.

Regional and Associate Medical Examiners

AFME appointed (with the concurrence of the service surgeons general) Regional Medical Examiners (RMEs) and Associate Medical Examiners (AMEs), who significantly expand our geographic scope. The RMEs and AMEs conducted 200 medicolegal investigations in 2005

under the guidance of the AFMES, which is directly reflected in immense savings for the government in travel dollars and man-hours. The RMEs and AMEs are located at Lackland AFB, Brook AMC, and Ft Hood, Tex; Ft Campbell, Ky; Eisenhower AMC, Ft Gordon, Ga; Bethesda, Md (USUHS); NMC Portsmouth, Va; NMC San Diego, Calif; Tripler ARMC, Hawaii; Landstuhl ARMC, Germany; and Camp Lester, Okinawa, Japan.

Special Investigation Division of AFMES

The Special Investigation Division provides consultations to all military investigative agencies, as well as numerous federal agencies including the FBI, ATF, US Secret Service, and the CIA. The division conducts casework involved with overseas terrorist bombings and investigations of the deaths of detainees. Studies were conducted on beheading victims to provide forensic evidence linked to terrorists responsible for these deaths. The system is instrumental in the development of new-generation body armor and research related to battlefield ballistic injuries. Morgue and laboratory facilities under the Special Investigation Division underwent major renovations, including procurement and stocking of field operation equipment for fast launch capabilities and storage of autopsy tissues from Operation Iraqi Freedom and theater combat fatalities. Significant new laboratory equipment was purchased to assist in the examination of human remains and associated trace materials. The forensic skeletal teaching collections have increased, including many unique specimens.

Noteworthy Achievements in 2005

2005 was a formidable year for the AFMES. The commitment to fully account for every military member who died in service to their country required the staff to undertake over 1,200 death investigations. The AFMES provided outstanding support of DoD and other federal agencies in death investigations. During 2005, autopsy examinations and written consultations were invaluable in promoting real-time force protection, especially for troops deployed to Operation Iraqi Freedom. In addition, several autopsy examinations and consultations were of great value in promoting aviation safety and administration of justice. The most noteworthy missions in 2005 included the following:

- Investigation of over 1,200 deaths from Operations Iraqi Freedom and Enduring Freedom.
- Deployment to Baghdad, Iraq to investigate the death of an enemy prisoner of war.
- Receipt of grants from the US Marines, US Army and Technical Support Working Group (TSWG) for over \$600K to analyze battle injuries and develop injury mapping technology.
- Continued collection and evaluation of helmets and ballistic vests from fatalities, with feedback to the designers of protective equipment, vehicle designers, and combat units.
- Ongoing development of new imaging technologies, with phase II of the project expected to commence in the spring of 2006.
- Over 1,300 reports in support of military families who have lost a loved one while in service to the United States.

EDUCATION

Courses

OAFME staff conducted the Basic Forensic Pathology course in 2005 with 93 attendees.

Trainees

LCDR Scott Luzi (USN) completed the one-year AFIP Forensic Pathology Fellowship and successfully passed his boards. Three new fellows (CDR Reedy, LCDR Solomon, and CPT Berran) commenced the program in the summer of 2005. Seven medical students and 3 pathology residents completed 4-week rotational clerkships in forensic pathology.

Faculty Appointments

1. Adjunct Faculty and Course Director, George Washington University/AFIP Masters of Forensic Sciences Program, DT Nguyen.
2. Adjunct Professor, George Washington University, Department of Forensic Sciences, WC Rodriguez III.
3. Consulting Associate Professor, Department of Anesthesiology, Duke University Medical Center, Durham, NC, JL Caruso.
4. Adjunct Faculty, USUHS, Bethesda, Md, JL Caruso.
5. Adjunct Assistant Professor, Division of Physician Assistant Education, School of Allied Health Professions, University of Nebraska College of Medicine, E Berg.

Two OAFME staff received appointments as Professorial Lecturers at George Washington University. OAFME staff testified as expert witnesses in several homicide trials and assault

cases. Forensic psychologist G Donovan gave lectures at the Forensic Pathology Course Grand Rounds at Bethesda, Md, in a GW course, and presented a 4-hour workshop on psychological autopsy with LN Finelli and JeanMarie Sentell, NCIS, at the DoD Suicide Prevention Conference.

Presentations

1. February 2005: NAS, Pensacola, Fla, "Aviation pathology," JL Caruso.
2. March 2005: Toronto, Ont, "Aviation pathology, Canadian Defense Forces," JL Caruso.
3. April 2005: Lenox, Mass, 2nd Annual Berkshire Trauma Conference, LN Finelli.
4. April 2005: Pittsfield, Mass, Berkshire Medical Center.
5. May 2005: NAS, Pensacola, Fla, "Aviation pathology," JL Caruso.
6. May 2005: Kansas City, Mo, Aerospace Medical Association, "AFIP and the Shuttle Columbia Mishap," JL Caruso.
7. May 2005: Los Angeles, Calif, National Association of Medical Examiners, "AFIP and the Shuttle Columbia Mishap," JL Caruso.
8. May 2005: Los Angeles, Calif, National Association of Medical Examiners, "SCUBA diving fatalities," JL Caruso.
9. June 2005: Harvard Associates for Police Sciences, CT Mallak.
10. June 2005: Chapel Hill, NC, North Carolina Medical Examiner Seminar, JL Caruso.
11. July 2005: St Louis University, Masters Course in Death Investigation, CT Mallak.
12. July 2005: Southern California Association of Fingerprint Examiners, CT Mallak.
13. August 2005: NAS, Pensacola, Fla, "Aviation pathology," JL Caruso.
14. September 2005: Armed Forces Epidemiology Board Meeting, CT Mallak.
15. September 2005: Burlington, Mass, 38th Annual 804th Medical Brigade Medical Symposium, LN Finelli.
16. October 2005: Panama City, Fla, NDSTC, "Diving medicine," JL Caruso.
17. October 2005: Los Angeles, Calif, National Association of Medical Examiners Annual Meeting, LN Finelli.
18. November 2005: Association of Military Surgeons Association Annual Meeting, Stitt Lecture, CT Mallak.
19. November 2005: 1st International Conference on Postmortem Radiology, CT Mallak.
20. November 2005: AFIP Annual AP Conference, "Benign esophageal and gastric lesions," M Labovich.
21. December 2005: Greenville, NC, East Carolina Medical Examiner Seminar, JL Caruso.

RESEARCH

The AFMES received a \$3.9M grant for 3 years and received \$1.47M for 2005 from the Defense Advanced Research Program Office to develop the "Virtual Autopsy."

Collaborators

- Special Operations Command, Tampa, Fla: Military-preventable deaths in the Special Operations Community.
- Duke University Medical Center: Civilian-recreational diving fatalities, Divers Alert Network.
- OAFME works closely with the Military Services Safety Centers in aircraft accident investigations, safety issues and educational endeavors for their respective aeromedical communities. We also provide aviation pathology training to the Canadian aeromedical community.

PROFESSIONAL ACTIVITIES

Official Trips

1. July 2005, St Louis, Mo, Masters Conference for Advanced Death Investigation, CT Mallak (St Louis University School of Medicine).
2. August 2005, Chicago, Ill, College of American Pathologists, JL Caruso (CAP).
3. September 2005, Cambridge, Mass, American Society of Law, Medicine and Ethics, G Donovan (ASLME).
4. September 2005, Atlanta, Ga, CDC, CT Mallak (CDC).
5. October 2005, National Association of Medical Examiners, A Marzouk, JL Caruso, LN Finelli, WC Rodriguez III.
6. November 2005, Santa Fe, NM, College of American Pathologists, CT Mallak, LN Finelli (CAP).

7. November 2005, Chicago, Ill, College of American Pathologists, JL Caruso (CAP).
8. December 2005, East Carolina University, JL Caruso (ECU).

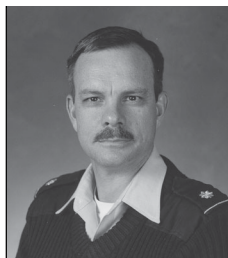
Manuscripts Reviewed

Members of the department reviewed articles for the following in 2005:

1. American Journal of Forensic Medicine
2. Duke University Medical Center
3. Naval Undersea Medical Institute

Editorial Boards

1. *American Journal of Forensic Medicine and Pathology*, WC Rodriguez III.
2. *Journal of Forensic Sciences*, WC Rodriguez III.



Brion C. Smith, COL, DC, USA
Chief Deputy Medical Examiner
Director, Department of Defense DNA Registry

DoD DNA REGISTRY (OAFME)

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(D) Roger K. Batchelor, Admin. Assistant (ARP)
Amanda Solares, Lead QC Technician (ARP)
Marie Reese, QC Technician (ARP)
Arvin Solis, Sr. Specimen Processor Team Leader (ARP)
Mariafe Vance, Sr. Specimen Processor Team Leader (ARP)
Diane Giampetroni, Sr. Specimen Processor (ARP)
Gloria Lindmark, Sr. Specimen Processor (ARP)
Ernie Costes, Specimen Processor (ARP)
Amanda Goff, Specimen Processor (ARP)
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Steven Thompson, Specimen Processor (ARP)
Rene Malones, Systems Administrator (FTI)
Al Lambert, Network Administrator (EDS)
(D) Dat Nguyen, Network Administrator (EDS)

IMPACT

- The DoD DNA Registry (the Registry) is a division of the Armed Forces Medical Examiner System (AFMES) and an operational element of the AFIP. The Office of the Surgeon General (OTSG) provides Army Executive Agency. The Registry has 2 subordinate branches: the Armed Forces DNA Identification Laboratory (AFDIL) and the Armed Forces Repository of Specimen Samples for the Identification of Remains (AFRSSIR).
- The Registry is charged with the missions of DNA identification of human remains, information technology development, mass fatality management, and DNA reference specimen collection, archival, storage, and retrieval services for the DoD.
- In addition to routine AFMES casework, the Registry established a 3-person Outside Casework and Mass Fatality Contingency Section that was authorized to perform reimbursable casework for other federal and nonfederal clients, until they were required to support current military operations around the globe. This core mission is funded through the Defense Health Program (DHP). DHP funding levels had been flat over the last few fiscal years, resulting in a net decrement of approximately 12%, while the demand for DoD forensic DNA casework and reference card collections continues to grow, particularly in relation to Operations Enduring and Iraqi Freedom and the continuing Global War on Terror. This budgetary trend is starting to reverse, with a nominal increase in DHP funding during the past fiscal year.
- The Joint POW/MIA Accounting Command (JPAC) is a field-operating agency of the United States Pacific Command (PACOM). JPAC is the lead organization in the search, recovery, and identification of US service members missing from prior military conflicts. Although JPAC meets most mission requirements with internal assets (forensic anthropology, odontology,

data analysis, recovery teams), it has become increasingly reliant upon the use of mitochondrial DNA (mtDNA). 2005 statistics showed that AFDIL mtDNA support is required for more than 70% of JPAC-CIL casework. As the recognized world leader in this technology, AFDIL has provided this DNA support to JPAC since 1994, when the US Army G-1, the executive agency for JPAC's predecessor, the Central Identification Laboratory, Hawaii (CILHI), first requested it. The G-1 continues to fund AFDIL for the costs of these DNA services and a 5-year Memorandum of Agreement (MOA) between the AFIP, the Casualty and Memorial Affairs Operations Center (CMAOC), as the EA for DoD mortuary affairs, and JPAC is reaching final staffing and is expected to be signed in 2006, solidifying continuity of support. Funding for this ancillary support to JPAC has been inconsistent at times, but has generally increased over the last several years.

- The Registry continued its support of the Service Casualty Offices and the Defense Prisoner of War/Missing Personnel Office (DPMO) in support of family members of unaccounted-for service members from all American armed conflicts.
- In conjunction with the other governmental and nongovernmental organizations responsible for the personnel accounting mission, the Registry provided numerous briefings and tours for family members and presentations at monthly family member updates. At these DPMO Family Updates, AFDIL staff members collected over 250 family reference specimens from eligible donors. During the Annual Government Briefings for the Korea-Cold War family members, in addition to on-site support at the meeting location in Crystal City, Va, 253 family members came to the AFIP Annex for a briefing and tour of the AFDIL facilities.
- During 2005, the Registry participated in family member update locations throughout the United States and addressed thousands of family members who attended these briefings.
- The Registry's response to the states of Louisiana and Mississippi and to the Federal Emergency Management Agency (FEMA) and the Disaster Mortuary Response Team (DMORT) of the Department of Homeland Security in the aftermath of the Hurricane Katrina disaster was a resounding success. The Registry developed, implemented, and executed a viable plan that not only met the needs of the FEMA tasking but exceeded those requirements. Each deployed AFDIL member reported participation in the mission as a very positive and rewarding experience. Seventeen of the 18 people deployed stated they would return if necessary and would like to be considered for similar mass fatality incident (MFI) deployments in the future.
- The tasking for Registry support from FEMA was a new experience for both agencies as well as for the DoD. There was a reasonable amount of misunderstanding and confusion regarding the proper sequence and approval channels of the tasking. Any future FEMA tasking should be less complicated in light of experience gained from the Katrina deployment.
- This incident was the first MFI worked by the Registry in support of another federal agency that limited involvement to field sample collection. Coordinating DNA laboratory services external to the Registry created challenges previously not encountered. The DNA team successfully managed all aspects of the task, but noted that missions that include the DNA laboratory are easier to manage.
- The experience gained in response to Hurricane Katrina should be used as a baseline to form DNA-related policy and decision making for DoD support to all federal agencies in the future. No other federal or commercial enterprise is better equipped, staffed, or trained to undertake a mission of such magnitude. The Registry should continue to be the federal government's "go to" source for MFI DNA identification management assistance.
- 100% of the DNA Division's casework and research is directly applicable to support of the DoD. Non-DoD casework is performed only with specific authorization from OTSG and only on the basis of full reimbursement.

CONSULTATION

<i>Cases</i>	<i>Completed</i>
Military	3,006
Family Reference (1,318)	
CIL (675)	
AFMES (253)	
Quality Control (760)	
Civilian	96
Outside Casework (18)	
Proficiency (78)	

OFFICE OF RESOURCE AND CONTRACT MANAGEMENT (ORCM)

The Office of Resource and Contract Management (ORCM) is composed of a core group of US government employees. As such, this office is responsible for all activities that are considered “inherently governmental,” including processing and procurement of all requests for reagents, laboratory supplies, equipment, maintenance services, facility management activities, travel requests, and MOA processing, monitoring, and execution. Other activities include human resource functions, budget formulation, execution, monitoring and reporting, inventory and supply stock management, and equipment inventory and accountability. Further activities include contracts management, including the increasingly critical contract for Information Technology (IT) services.

Accomplishments

Managed the facilities required for the organization and all aspects of support, including lease, utility, renovation, security, maintenance, etc. Provided funding and management of renovation activities totaling \$1.4M in appropriated funds.

Individual Contracts Managed:

ARP Personnel Services	\$6,900K
American Biomedical Group, Inc.	\$37K
Medical Equipment Maintenance Co.	\$51K
RASCo. Reagent Grade Water	\$15K
Pipette Calibrations	\$37K
Future Technologies, Inc.	\$1,450K
Applied Biosystems, Inc. (ABI)	\$75K
NIH (Equipment Rental Program)	\$486K
FITZCo DNA Collection Materials	\$335K

Appropriations Management and Execution:

Defense Health Program (DHP)	\$4,398K
Operations and Maintenance, Army (OMA)	\$7,608K
Joint Federal Agency Intelligence DNA Database (JFAIDD)	\$1,650K

IMPAC Credit Card Program:

Appropriations	Demands	Line Items	Total
DHP	242	334	\$750K
OMA	355	603	\$1,123K

Routine Purchase Requests:

Appropriations	Demands	Line Items	Total
DHP	26	72	\$2,173K
OMA	14	39	\$925K
JFAIDD	61	116	\$2,874k

Defense Medical Logistic Support System (DMLSS):

Appropriations	Demands	Line Items	Total
DHP	34	119	\$286K
OMA	23	98	\$186K

- Administered and managed IT service contracts for software development, network support, database management, hardware maintenance, and bench-level desktop support.
- Directed the development, testing, and deployment of the DNA Registry Inventory Management Systems (DRIMS), a comprehensive module within the Laboratory Information Systems Application (LISA) operating system of the Laboratory Information Management System (LIMS). This program allows for the automated scheduling of laboratory replenish-

ment, equipment failure notification, comprehensive manufacturer, supply, and distribution information collection, and other integrated inventory management functions. Transition to paperless inventory management continues.

- Managed the DNA contract line item numbers (CLINs) of the Personnel Services contract with ARP. These CLINs represent approximately 100 administrative, managerial, scientific, and technical positions at the AFDIL and AFRSSIR.
- Managed the Joint Federal Agency Intelligence DNA Database (JFAIDD) administrative requirements, which support the combined federal response to the continuing Global War on Terror. This program support includes the procurement of personnel, supplies, space, equipment, and laboratory reagents for the processing of over 10,000 specimens expected per annum. Support includes establishment of an ancillary personnel services contract for administrative, managerial, scientific, and technical requirements associated with this project.
- Managed the logistical requirements associated with the Registry's response to the devastation of Hurricane Katrina, as requested by FEMA through the US Army OTSG and the Joint Task Force Katrina. We provided initial funding to deploy collection staff and materials to 2 DMORT morgues in Louisiana and Mississippi. Full reimbursement for costs incurred is expected and a final invoice has been transmitted to FEMA for payment.
- Managed the logistical requirements associated with the AFMES Virtual Autopsy project funded through appropriated funds and from the Defense Advanced Research Projects Agency.

THE ARMED FORCES DNA IDENTIFICATION LABORATORY (AFDIL)

MITOCHONDRIAL DNA (mtDNA) SECTION

The primary mission of the AFDIL's Mitochondrial DNA Section is to work with JPAC-CIL to identify the remains of soldiers missing from past American military conflicts, primarily those from Southeast Asia, the Korean War, and World War II. In 2004, we expanded the age of skeletal remains tested to the Civil War with mtDNA analysis of remains recovered from the CSS Hunley and to the Revolutionary War with mtDNA analysis of the remains of the American heroine Jane McCrea. In 2005, the difficulty in obtaining usable mtDNA in the cases we received increased, with 74% of the cases reported requiring our most sensitive assay (compared to 66% in 2004) and 16% of our staff either departed or were reassigned to other sections, increasing the number of individuals in training as positions were filled; however, we ably met these challenges. We have exceeded our expectations of technological capabilities and have been able to retain our status as the world-renowned leader in mtDNA analysis.

Through an MOA with the US Army CMAOC, as the Executive Agent for the human remains repatriation activities of the DoD, the mtDNA section was required to process, analyze and report 800 biological (skeletal) specimens by 2005. Through the implementation of new technologies into active casework, we were able to exceed this goal with an appreciable increase over 2004. In support of the Family Outreach Program of CMAOC, we received 669 new family reference samples in 2005, and maintained no backlog of specimens to be processed. We reported out 1,415 family references in 2005, compared to 478 in 2004, a nearly 200% increase in output. In support of the JPAC-CIL mission, we were also able to generate 59 identification reports for unknown service members in 2005, a 90% increase from 2004.

At the beginning of 2005, the mtDNA Section was on the verge of incorporating new platforms into active casework. One of our largest changes was the transformation from slab gel technology (ABI PRISM® 377) for processing sequencing results to a capillary electrophoresis platform (ABI PRISM® 3100 Genetic Analyzer). While this transition proved to be somewhat more difficult than expected, it has effectively increased the number of samples we are able to process, as well as the overall quality of the data. In addition, the new platform is more sensitive, thereby reducing the amount of reprocessing required due to insufficient results and decreasing our overall turnaround time. Even with some implementation difficulties, we were able to increase the number of reactions processed in 2005 by 23%. We expect productivity to increase as we decommission the ABI PRISM® 377s and improve our performance with the more sensitive 3100s.

We have begun to examine how to more easily incorporate new techniques into casework. The Research Section of the AFDIL has diligently been exploring and developing new technologies, which the other AFDIL sections are beginning to validate for implementation into everyday use. Two technologies that the mtDNA section is most aggressively pursuing are mtDNA single nucleotide polymorphisms (SNPs) and nuclear DNA low copy number short tandem repeat (LCN-STR) analysis. Both of these types of analysis will expand the toolkits available to us for the more effective separation of commingled sets of remains. Frequently we and the JPAC-CIL are faced with incidents where multiple individuals involved may share a common mitotype. Employing SNPs and LCN-STR will enable us to individuate these remains, thereby increasing the number of service member repatriations.

MtDNA analysis has been more deeply incorporated into the repertoire of evidence available to the scientists at JPAC-CIL to assist in the identification process. The case that is the best example of this integration involves the identification of 7 US Navy airmen from WWII. The 7 airmen were lost when their PBY-5 aircraft crashed on Kiska Island off the coast of Alaska. Initial sorting of the recovered remains by anthropological and archaeological analysis identified 14 sets of skeletal elements, 7 post-cranial, 6 dental and one unidentified fragmentation. mtDNA analysis confirmed this sorting; however, maternal references for these airmen could not be located, with a single exception. JPAC-CIL scientists, utilizing mtDNA analysis and anthropological techniques, developed a novel means of identification. Since each of the 6 clusters of cranial remains could be attributed to a specific individual using antemortem dental records, the mitotypes of these dental remains then served as "self-references" for the non-cranial remains. Close working relationships have increased communications between the scientists at JPAC-CIL and AFDIL and allowed for these identifications to be made as soon as reasonably possible, culminating with the missing airmen being repatriated to their families in 2005.

We expanded our interactions with other forensic scientists and organizations in 2005, and mtDNA staff members have given presentations and posters at professional conferences across the United States and around the world. This scientific outreach has raised our stature in the national and international forensic scientific communities, and requests for our standard operating protocols have been received from laboratories as far away as Hong Kong and Taiwan. Our scientists have been invited to participate in workshops and collaborations creating a network of cooperation and understanding worldwide. We also participate with our local community. Many of our scientists have given their time to speak with community and educational groups, and we have given career day lectures, judged science fairs, and given facility tours to local students. Our local community support has grown in the past year. Hopefully these interactions have educated members of the community about science as a whole and, perhaps, engendered the next generation of forensic scientists.

2005 was a very successful year for the mtDNA Section. Cooperative interaction between the JPAC-CIL anthropologists and AFDIL molecular biologists are improving techniques at both facilities, and the mtDNA section is working with and participating in the activities of both the Nuclear and Research sections at AFDIL to better integrate new systems and improve the performance of the entire organization. In 2006, we plan to continue our collaboration with JPAC-CIL, other AFDIL sections, and scientific organizations worldwide to expand and advance new techniques that can improve our efforts to repatriate the remains of missing US service members to their families and a grateful nation.

Nuclear DNA (nucDNA) Section

In 2005, the AFMES and Consultative Services (AFDIL^{CS}) teams were merged as a continued effort to respond to Operations Iraqi and Enduring Freedom and the continuing Global War on Terror. The section processed more than 3,000 evidence and reference specimens, with an average turnaround time of 13.75 days for both routine and rapid (STAT) analysis.

For the 58 cases submitted for STAT analysis, the average turnaround time was 1.5 days, exceeding commercial turnaround time by 1,000%. In these instances, remains could be identified and repatriated with family members almost immediately. Without DNA analysis, identification would have been impossible. The team also provided forensic DNA analysis to other government agencies requiring a combination of autosomal STRs, Y-STRs and mtDNA analyses. The majority of these cases were criminal paternity cases and biopsy specimen cases.

In June 2005, AFDIL collaborated with the US Army Criminal Investigation Laboratory (USACIL) on a case that required the specialized Y-STR testing that was brought online by AFDIL in 2003. After obtaining no foreign DNA on samples collected from a sexual assault, USACIL forwarded their samples to AFDIL for additional testing using the Y-STR kit, which

targets male DNA. AFDIL was successful in obtaining reportable results on one of the items tested and the results were consistent with one of the 3 male suspects in the case, allowing the military to move forward with prosecuting the suspected perpetrator.

Applied Biosystems' Quantifiler Kit and the AB-SDS 7000, a real-time quantitative PCR system, were implemented into routine nuclear casework in 2005. The quantitative system allows for the accurate detection of human DNA from as low as 68pg of specimen sample. As a result, scientists can utilize the accurate quantitative information to target the optimal range of DNA for amplification and ultimately reduce analysis time. A third Capillary Electrophoresis apparatus was validated for casework to help the section keep up with the growing need for STR detection and analysis.

We renamed the high-throughput team, the Joint Federal Agencies Anti-Terrorism DNA Database, to the Joint Federal Agencies Intelligence DNA Database (JFAIDD) to more accurately reflect the work done by this highly motivated group.

The BioMek2000 and Promega's DNA IQ kit for Bode Swabs were also validated and implemented to provide a more efficient high-throughput extraction system. The BioMek2000 requires less human intervention and consistently yields 1-4 ng of DNA per sample. The LISA High-Throughput (HTP) program was enhanced to include work lists and barcode generation for sample tracking. Pre Consensus and Consensus modules were added to the AFDIL Statistical Analysis Program (ASAP). Now data from 2 independent analyses are imported into ASAP and the program then compares the profiles to generate a consensus profile. The program flags any discrepancies and the data is then re-evaluated by the scientists and the consensus profile is then automatically uploaded into a searchable database.

JFAIDD has mastered the HTP processing system and has contributed significantly to both family reference bloodstain processing for mitochondrial DNA casework and Repository Quality Control bloodstain processing for nuclear DNA casework.

The Quality Control/Validation team investigated filter paper matrices and storage conditions for storing bloodstained cards. The purpose of the temperature storage study was to evaluate the integrity of whole blood DNA reference specimens collected on untreated filter paper and stored at either room temperature (50%) or -20°C (50%) distributed across a 6-year period. Results demonstrated that there was no difference in the overall yield and quality of DNA extracted from the 1998 samples compared to the more recent 2004 samples that had been stored at room temperature or in the freezer. The older samples gave DNA yields and PowerPlex 16 profiles consistent with the DNA yields and profiles obtained with more recent 2004 samples, supporting the contention that long-term storage at room temperature or frozen does not adversely affect the ability to obtain high-quality DNA. The purpose of the matrix study was to identify a suitable substitute for the currently used Whatman BFC 180 filter paper, which was being discontinued for use by the selected contractor. Results from the filter paper matrix study demonstrated that the Ahlstrom Grade 205 filter paper, and not the Ahlstrom Grade 237 filter paper, could be substituted for the Whatman BFC 180 filter paper in the blood-stained collection cards.

AFDIL provided instruction for 2 semesters of the graduate Forensic DNA Profiling course through The George Washington University. AFDIL also hosted interns from Lockhaven University, the State University of New York at Albany, Ohio Northern University and The George Washington University. The interns were integral in evaluating the TECAN Robot for nuclear 3100 set-up and the Promega's DNA IQ extraction kit for nuclear tissue processing and mtDNA bone processing.

In October 2005, AFDIL sponsored the annual international training course, "Extraction of DNA from Aged Skeletal Remains and Forensic Mitochondrial DNA Sequence Analysis," attended by individuals from Russia, Colombia and the United States.

Research Section

The Research Section, considering its size, is remarkably productive and works as a team very harmoniously. Job satisfaction is high, people are motivated, open, communicative, and striving for additional skills and responsibilities.

Research and databasing projects include:

- Robotic, bioinformatic-integrated HTP mtDNA control region databasing.
- Robotic, bioinformatic-integrated HTP mtDNA genome databasing.
- Robotic, bioinformatic-integrated HTP Y-chromosomal databasing.
- Robotic, bioinformatic-integrated HTP autosomal STR databasing.

- Robotic, bioinformatic-integrated HTP mtDNA SNP databasing of reference samples.
- Development of highly sensitive LNC STR typing protocols capable of recovering full or nearly full profiles from ~60% of extracts produced by mtDNA casework section.
- Development of simplified demineralization bone extraction protocols that produce on average 5-20 times greater yield of ancient DNA from degraded bone.
- Development of quantitative real-time PCR for nuclear DNA, and a range of mtDNA amplicon sizes.
- Continued experimentation for solving the problems associated with remains exhumed from the National Cemetery of the Pacific, including characterization of molecular crosslinking, crosslinking reversal experiments, novel polymerases for damaged DNA, improved extraction protocols, and molecular cloning for mixture resolution.
- Development of a stand-alone bioinformatics system for the Research Section, to complement features of the primary AFDIL LIMS system. Features of the system include tracking of samples and plates through the entire process of high-throughput analysis, for mtDNA control region, whole mtGenome, and STR databasing, mtDNA SNP databasing. Also included are flexible databases for comparison and higher-level analysis of data. Also included are macros for conversion of data from GeneMapper, permitting automated analysis of a robotic SNP databasing project for the NIJ grant, and a searchable, interactive index program for determining standard calling of difficult mtDNA sequence motifs.
- A set of 8 multiplex SNP panels for increased mtDNA discrimination are almost ready for validation and implementation. The first, most important, multiplex is now ready for completion of validation and training, and this is now underway in cooperation with the mtDNA and QC sections. This follows a very difficult troubleshooting process in relation to an unanticipated crash in PCR for this multiplex.
- \$400,000 from other government agencies to support mtDNA and STR databasing of global populations. \$1,891,390 from NIJ for national and international mtDNA databases.
- Statistical and population genetic advice regarding interpretation of forensic DNA results.
- Collaborations with NIST; University of Innsbruck; Yale University; York University, UK; NIH; UK Medical Research Center; Max Planck Institute, Germany; IBIS; FBI; FSS; University of Tartu, Estonia; numerous contributors of database samples worldwide.

ARMED FORCES REPOSITORY OF SPECIMEN SAMPLES FOR THE IDENTIFICATION OF REMAINS (AFRSSIR)

In 2005, the AFRSSIR accessioned 234,405 DNA reference specimens from 1,050 separate collection sites (Army – 110,814, Air Force – 36,161, Navy – 41,277, Marine Corps – 36,533, Coast Guard – 5,471, Civilian – 4,138).

The Director of Repository Operations and Repository ARP Supervisor conducted collection site inspections at 6 facilities to provide informational briefings and to evaluate collection procedures and compliance with applicable directives.

Accessioned DNA reference specimen inventory at the end of the year totaled 4,727,845. Total service members on file at the AFRSSIR represent about 98% of total military population. In the past year the repository processed 28 donor requests for destruction of donor DNA samples and 32 requests for release of specimens. The repository released 1,142 DNA specimens to AFDIL for human remains identification.

The Director of Repository Operations conducted 2 presentations for audiences totaling more than 200 attendees regarding DNA identification in mass fatality incidents.

AFRSSIR and AFDIL conducted a study of DNA blood references collected on untreated filter paper and stored at room temperature. The study evaluated duplicate DNA samples stored at room temperature since 1997 by comparing 500 samples with matching samples collected from the same location on or about the same date and stored in freezers. Preliminary results suggested room temperature samples have a slightly higher DNA yield than frozen samples. Additional testing is ongoing and results should be published in 2006.

The Director of Repository Operations and the Repository ARP Supervisor deployed to Gulfport, Miss, and Baton Rouge, La, to sample human remains for DNA identification in support of DMORT operations for Hurricane Katrina.

PRESENTATIONS

1. January 2005: Washington, DC, Anacostia High School, "Career day explorations," R Tate.
2. January 2005: Washington, DC, George Washington University Medical School, "Forensic DNA analysis and casework," JR Charak, DA Lee, TL Johnson, JM DiFrancesco.
3. January 2005: Reno, Nev, Defense Prisoner of War Missing Personnel Office Monthly Family Update, "DNA in the identification process," JJ Canik, R Mudhar, K Harris.
4. February 2005: New Orleans, La, 57th Annual Meeting of the American Academy of Forensic Sciences, "Separating commingled remains using DNA analysis," FE Damann, SM Edson, MD Leney.
5. February 2005: New Orleans, La, 57th Annual Meeting of the American Academy of Forensic Sciences, "Operation Iraqi Freedom: AFDIL's response and the challenges faced," JM DiFrancesco, P Foley, A Heller, R McDowell, D Lee, DA Boyer, JJ Canik, BC Smith.
6. February 2005: San Antonio, Tex, Defense Prisoner of War Missing Personnel Office Monthly Family Update, "DNA in the identification process," JJ Canik, S Patterson, J Spangler.
7. March 2005: Bethesda, Md, Sexual Assault Response Team Training Program, "DNA and its application to forensic science," K Murga.
8. March 2005: Germantown, Md, Seneca Valley High School, "Schoolwide career day presentation," D Pierce.
9. March 2005: Orlando, Fla, International Society for Optical Engineering, Defense and Security 2005: Homeland Security, Law Enforcement, and Battleship Technologies, "The CSI effect on science: the real issues regarding human identification in forensic science," K Murga.
10. March 2005: Memphis, Tenn, Defense Prisoner of War Missing Personnel Office Monthly Family Update, "DNA in the identification process," JJ Canik, R Tate, J O'Callaghan, S Monaghan.
11. March 2005: Memphis, Tenn, DoD Casualty Officers Conference, "DNA update: current and prior conflicts," JJ Canik, R Tate, J O'Callaghan, S Monaghan, KS Carroll.
12. April 2005: Derwood, Md, Redland Middle School, "Careers in forensic science," L Harvey.
13. April 2005: Raleigh, NC, Defense Prisoner of War Missing Personnel Office Monthly Family Update, "DNA in the identification process," JJ Canik, C Paintner, S Lewis.
14. May 2005: Dover, Del, Air Force Sergeants Association Division 2 Convention, "DNA in the identification process," SM Edson.
15. May 2005: Pittsburgh, Penn, Mid-Atlantic Association of Forensic Sciences, "Processing mtDNA from ancient skeletal remains utilizing a novel sequencing strategy and the ABI 3100 genetic sequencer," T McMahon, SC Schroeder, RS Oliver, JE O'Callaghan, SM Barritt, BC Smith.
16. May 2005: Pittsburgh, Penn, Mid-Atlantic Association of Forensic Sciences, "Leave no soldier behind: alternative DNA references used to identify a missing American soldier after 60 years" (Poster), JM Barnes, CE Meyer, CD Paintner, BC Smith.
17. May 2005: Pittsburgh, Penn, Mid-Atlantic Association of Forensic Sciences, "The Armed Forces DNA Identification Laboratory's response to Operation Iraqi Freedom," MM Sommer, TL Johnson, DA Lee, JP Ross, BC Smith.
18. May 2005: Rockville, Md, Science Night at Rock Creek Valley Elementary School, "Fingerprints and forensic science," MM Sommer.
19. May 2005: Silver Spring, Md, "Careers in forensic science," L Harvey.
20. May 2005: Washburn and Milwaukee, Wis, Family Notifications of US Marine Corps Vietnam War Identifications: DNA Results, A Coute.
21. May 2005: Washington, DC, Defense Prisoner of War Missing Personnel Office Monthly Family Update, "DNA in the identification process."
22. May 2005: Wichita, Kan, Family notification of identification results.
23. May 2005: Leesburg, Va, National Transportation Safety Board, "Transportation disaster response: mass fatality incidents for medicolegal professionals," DA Boyer.
24. May 2005: Riverside, Calif, Disaster Mortuary Operational Response Team (DMORT) Region IX, "The role of DNA identification in mass fatality incidents," DA Boyer.
25. June 2005: Arlington, Va, Promega DNA Technology Exposition, "PowerPlex16: the AFDIL way," S Oliver, A Getz, R Tate.
26. June 2005: Ashburn, Va, 18th Annual Forensic Anthropology Course, National Transportation Safety Board Academy, "DNA analysis of skeletal remains," M Narvaez.
27. June 2005: Berkeley, Calif, Promega DNA Technology Exposition, "PowerPlex16: the

- AFDIL way," S Oliver, A Getz, R Tate.
28. June 2005: Montego Bay, Jamaica, 12th International Conference on Human Retrovirology, "Differential analysis of Tax/CREB-dependent promoters: a bioinformatics approach," C De la Fuente, K Strouss, P Cahan, T McCaffrey, A Galante, P Soteropoulos, A Pumfrey, F Kashanchi.
 29. June 2005: Montego Bay, Jamaica, 12th International Conference on Human Retrovirology, "The HTLV-I Tax oncoprotein targets retinoblastoma (Rb) for proteasomal degradation" (Poster), C De la Fuente, K Kehn, K Strouss, R Berro, H Jiang, J Brady, R Mahieux, A Pumfrey, ME Bottazzi, F Kashanchi.
 30. June 2005: Rockville, Md, Career Day at Farmland Elementary School, "Fingerprints and forensic science," MM Sommer.
 31. June 2005: Washington, DC, 6th Annual NIJ Grantees Workshop, "MtDNA genome SNPs for increased forensic discrimination in US Caucasians, African Americans, and Hispanics," RS Just, TJ Parsons.
 32. June 2005: Washington, DC, Annual Government Briefings for Southeast Asia Family Members, Defense Prisoner of War Missing Personnel Office, "DNA in the identification process," JJ Canik.
 33. July 2005: Washington, DC, College-Bound Senior Seminar at Howard University, "Opportunities in the forensic sciences" (Poster), JR Charak.
 34. July 2005: San Diego, Calif and Albuquerque, NM, Family Notifications of US Marine Corps Vietnam War Identifications, DNA Results, D Haliniewski.
 35. July 2005: Omaha, Neb, Defense Prisoner of War Missing Personnel Office Monthly Family Update, "DNA in the identification process," JJ Canik, S Peery, D Haliniewski.
 36. August 2005: Columbus, Ohio, Defense Prisoner of War Missing Personnel Office Monthly Family Update, "DNA in the identification process," JJ Canik, MB Stone, D Jamison, L Harvey.
 37. August 2005: Columbus, Ohio, Defense Prisoner of War Missing Personnel Office Monthly Family Update, "DNA in the identification process."
 38. August 2005: Hong Kong, 17th International Association of Forensic Sciences Meeting, "Success rates for recovering mitochondrial DNA (mtDNA) from 4,000 'ancient' human skeletal remains," SM Edson, HA Thew, FE Damann, CA Boyer, SM Barritt-Ross, BC Smith.
 39. August 2005: Hong Kong, 17th International Association of Forensic Sciences Meeting, "The development of a completely robotic high-throughput system for short tandem repeat typing of moderately challenged oral swabs," T Johnson, T McMahon, J Ross, T Anderson, D Lee, BC Smith.
 40. August 2005: Hong Kong, 17th International Association of Forensic Sciences Meeting, "Validation of the PowerPlex®16 STR kit and the ABI 3100® Genetic Analyzer," TP McMahon, DA Lee, BC Smith.
 41. August 2005: Hong Kong, Promega Workshop on High-throughput, 17th International Association of Forensic Sciences Meeting, "High-throughput robotic database processing at the Armed Forces DNA Identification Laboratory," T McMahon.
 42. August 2005: Hong Kong, 17th International Association of Forensic Sciences Meeting, "Validation of Quantifiler™ System and the AB-7000 sequence detector" (Poster), TP McMahon, CL Vito, JN Roth, DA Lee, BC Smith.
 43. August 2005: Hong Kong, 17th International Association of Forensic Sciences Meeting, "Validation of a novel mtDNA sequencing strategy and the AB-3100 Genetic Analyzer for processing ancient skeletal remains" (Poster), TP McMahon, RS Oliver, SC Schroeder, SM Barritt-Ross, BC Smith.
 44. September 2005: Dubrovnik, Croatia, 4th European-American School in Forensic Genetics and Mayo Clinic Course in Advanced Molecular and Cellular Medicine, "Validation of a novel mtDNA sequencing strategy and the AB-3100 Genetic Analyzer for processing ancient skeletal remains" (Poster), TP McMahon, RS Oliver, SC Schroeder, A Coute, SM Barritt-Ross, BC Smith.
 45. September 2005: Dubrovnik, Croatia, 4th European-American School in Forensic Genetics and Mayo Clinic Course in Advanced Molecular and Cellular Medicine, "The erroneous refutation of DNA testing in the Romanov case," TJ Parsons, M Hofreiter, OM Loriele, SM Barritt, MJ Wadhams, RK Massie, E Hagelberg, P Gill.
 46. September 2005: Dubrovnik, Croatia, 4th European-American School in Forensic Genetics and Mayo Clinic Course in Advanced Molecular and Cellular Medicine, "Entire mtDNA control region databases from Central Asia: Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan" (Poster), JA Irwin, JL Saunier, JE O'Callaghan,

- RS Just, TM Diegoli, CD Paintner, KM Strouss, KA Sturk, KJ Watson, HR Williams, SJ Correll, WJ Ivory, D Ferriola, JC Norris, JP Ross, AI Nuritdinov, RS Mukhaedov, TJ Parson, AA Ikramov.
47. September 2005: Grapevine, Tex, Promega 16th International Symposium on Human Identification, "Characterization and reversal of extensive DNA crosslinking in skeletal remains from the Korean War treated with formaldehyde-based mortuary compounds" (Poster), O Loreille, H Koon, TM Diegoli, KM Strouss, M Leney, M Collins, TJ Parsons.
 48. September 2005: Grapevine, Tex, Promega 16th International Symposium on Human Identification, "Using mtDNA SNP typing to resolve common HV1/HV2 types in highly degraded samples from a missing persons case" (Poster), RS Just, CW Los, CM Miller, M Leney, SM Barritt-Ross, TJ Parsons.
 49. September 2005: Grapevine, Tex, Promega 16th International Symposium on Human Identification, "Separation of individuals in mass disasters and other sets of commingled remains: acquisition and use of appropriate reference materials" (Poster), SM Edson, MF Perella, SM Barritt-Ross, DA Lee.
 50. September 2005: Grapevine, Tex, Missing Persons Workshop at Promega 16th International Symposium on Human Identification, "The military's missing persons program: a model for the identification of degraded skeletal remains for federal, state, and private laboratories," SM Edson.
 51. September 2005: Ponta Delgada, Azores, Portugal, 21st Congress of the International Society for Forensic Genetics, "Lessons learned from the tsunami experience"; "ICMP involvement in tsunami identifications," TJ Parsons.
 52. September 2005: San Diego, Calif, Defense Prisoner of War Missing Personnel Office Monthly Family Update, "DNA in the identification process," JJ Canik, A Coute, M Narvaez, M Dorr.
 53. September 2005: Long Beach, Calif, Family Notification of Identification: DNA Results, JJ Canik, A Coute, M Narvaez, M Dorr.
 54. September 2005: San Diego, Calif, DoD Casualty Officers Conference, "DNA update: current and prior conflicts," JJ Canik, A Coute, M Narvaez, M Dorr, KS Carroll.
 55. September 2005: Takoma Park, Md, Takoma Park Middle School, "Forensic anthropology," J O'Callaghan.
 56. October 2005: Takoma Park, Md, Takoma Park Middle School, "Forensics and DNA," MM Sommer.
 57. October 2005: Takoma Park, Md, Takoma Park Middle School, "Crime scene investigation: breakin' it down: the crimes, the scene, the investigation," TM Taflambas.
 58. October 2005: Washington, DC, AFIP Professional Staff Conference, "An update on the K208," J O'Callaghan.
 59. October 2005: Washington, DC, Annual Government Briefings for Korea-Cold War Family Members, Defense Prisoner of War Missing Personnel Office, "DNA in the identification process," JJ Canik, TJ Parsons.
 60. October 2005: Washington, DC, Annual Government Briefings for Korea-Cold War Family Members, Defense Prisoner of War Missing Personnel Office, AFDIL Laboratory Tours, M Fasano, J Kappeller, A Coute, J O'Callaghan, J Raskin-Burns, M Wadhams, K Murga, JJ Canik.
 61. November 2005: Philadelphia, Penn, Drexel University School of Medicine, "Molecular biology applications to forensic science: identification issues utilizing nuclear and mitochondrial DNA analysis," R Tate, S Welti.
 62. November 2005: Spokane, Wash, Defense Prisoner of War Missing Personnel Office Monthly Family Update, "DNA in the identification process," JJ Canik, M Wadhams, L Jamison.
 63. November 2005: Spokane, Wash, Family Notification of US Navy WWII Identification Results, JJ Canik, M Wadhams, L Jamison.
 64. December 2005: Titusville, Penn, Family Notification of US Marine Corps WWII Identification, DNA Results, JJ Canik.

Journal Articles

1. Biesecker LG, Bailey-Wilson J, Ballantyne J, Baum H, Bieber FR, Brenner C, Budowle B, Butler JM, Carmody G, Conneally PM, Duceman B, Eisenberg A, Forman L, Kidd KK, LeClair B, Niezgoda S, Parsons TJ, Pugh E, Shaler R, Sherry ST, Sozer A, Walsh A. DNA identification of victims from the September 11, 2001 World Trade Center attack: scientific challenges and policy implications. *Science*. 2005;310:1122-3.

2. Karanth KP, Delefosse T, Rakotosaminanana B, Parsons TJ, Yoder AD. Ancient DNA from giant extinct lemurs confirms single origin of Malagasy primates. *Proc Natl Acad Sci U S A*. 2005;102:5090-5.
3. Kehn K, de la Fuente C, Strouss K, Berro R, Jiang H, Brady J, Mahieux R, Pumfrey A, Bottazzi ME, Kashanchi F. The HTLV-I Tax oncoprotein targets the retinoblastoma protein for proteasomal degradation. *Oncogene*. 2005;24:525-40.
4. Torwalt C, Murga K, Epp J, Balanchanra AT, Daoudi Y, Lee DA, Smith BC. Cervical smears as alternate source of DNA in the identification of human skeletal remains. *Can Soc Forensic Sci*. 2005;38:165-9.



Aaron Jacobs, COL, MS, USA
Chief
Date of Appointment – 30 May 2000

DIVISION OF FORENSIC TOXICOLOGY OFFICE OF THE ARMED FORCES MEDICAL EXAMINER (OAFME)

ORGANIZATION

The Division of Forensic Toxicology is organized into 3 departments:

1. Postmortem and Human Performance Testing Laboratory
2. DoD Drug Detection QA Laboratory
3. Forensic Toxicology Program Development Department

STAFF

Scientific

- Aaron Jacobs, COL, MS, USA, Chief Deputy Medical Examiner, Forensic Toxicology
- David Lesser, CDR, MSC, USN, Assistant Chief Deputy Medical Examiner, Forensic Toxicology
- Barry S. Levine, PhD, Toxicologist
- John Jemionek, PhD, Special Projects Officer
- Michael L. Smith, PhD, Expert Witness
- Eric T. Shimomura, PhD, Research Chemist
- Christopher Dunkley, LT, MSC, USNR, Chief, DoD Drug Detection QA Laboratory
- (D) Thomas Z. Bosy, LCDR, MSC, USN, Chief, DoD Drug Detection QA Laboratory
- Buddha D. Paul, PhD, Chief, Drug Testing Research
- Joseph Magluilo, Jr, Chief, Laboratory Operations
- Katherine Todorov, Capt, USAF, Quality Assurance
- Karen McCart, CAPT, USA, Research Biochemist
- Karoline K. Shannon, Deputy Chief, Laboratory Operations
- Stephen Bray, HM1, USN, NCOIC, Forensic Toxicology Services
- Emilda Greenidge-Blake, TSgt, USAF, Assistant NCOIC, Forensic Toxicology Services
- (D) John Kohler, HM1, USN, Assistant NCOIC, Forensic Toxicology Services
- Jason Sklerov, Analytical Toxicologist
- Shawn Vorce, Analytical Toxicologist
- (D) Robert O. Hughes, MS, Analytical Toxicologist
- Robert L. Jones, Analytical Toxicologist
- Joseph W. Addison, Analytical Toxicologist
- Adeyinka Babalola, Analytical Toxicologist
- Dawn Cox, Analytical Toxicologist
- Justin Holler, Analytical Toxicologist
- William E. Mayo, Analytical Toxicologist
- Rebecca DeRienz, Analytical Toxicologist
- Pamela McDonough, Analytical Toxicologist
- (D) Arianne Motter, Analytical Toxicologist
- Amber Rickard, Analytical Toxicologist
- Megan Manos, Analytical Toxicologist
- (A) Scott Larson, Analytical Toxicologist
- (A) Augustina Hui, Analytical Toxicologist
- Venus Anglemeyer, SPC, USA, Laboratory Technician

Joan Driver, SPC/E4, USAF, Laboratory Technician
Ngu Fon, HM3, USN, Laboratory Technician
Daniel Trinidad, TSgt, USN, Laboratory Technician
Ephraim Escobar, HM2, USN, Laboratory Technician
(D) Michael Malloy, HM2, USN, Laboratory Technician
(D) Avri McKnight, SSgt, USAF, Laboratory Technician
(A) Trisha Podsiadlo, SSgt, USAF, Laboratory Technician
(A) Andrea Hernandez, SPC, USA, Laboratory Technician
(A) Sandra Zimiga, SSgt, USAF, Laboratory Technician

Administrative

Jonathon Shane, MSgt, USAF, Superintendent, OAFME
Shairose Lalani, MSgt, USAF, Superintendent, Division of Forensic Toxicology
Teresa M. Schaefer, Information Specialist
Tara Short, Executive Assistant
Jaqueline O. Jordan, Secretary

IMPACT

- The division's scope of operations is immense, providing toxicological services to over 1,700 military, federal, state, local, and nongovernmental agencies worldwide. We play a key role in expanding the reach of forensic toxicology in establishing the relationship that toxicological agents play in military readiness as relating to illness, accident, or death. The division is divided into 3 departments: 1) Postmortem and Human Performance Testing Laboratory, which provides toxicology laboratory testing and consultation in medical examiner investigations and other medical cases of national interest; 2) DoD Drug Detection QA Laboratory, which provides quality assurance oversight of the entire DoD Drug Testing Program through certification, proficiency testing and laboratory inspections; 3) Forensic Toxicology Program Development Department, which plays a key role in ensuring that personnel are aware of the latest developments in forensic toxicology and that the services we provide to our customers are of the highest quality, timely, and economically sensible.
- The Postmortem and Human Performance Testing Laboratory offers toxicological services for the OAFME, all Armed Forces air, ground, and sea-based mishap investigations, Armed Forces criminal investigations, Armed Forces fitness-for-duty investigations, and Armed Forces medicolegal determinations (eg, DUI). We also provided toxicological consultations to NASA following the space shuttle Columbia accident investigation, the CIA following the assault on a Moscow theater, and hundreds of military and federal agencies during Operation Enduring Freedom and Operation Iraqi Freedom.
- The DoD Drug Detection QA Laboratory is integrally coupled with the DoD Drug Testing Program, providing laboratory certification procedures for 1 Air Force, 2 Army, and 3 Navy DoD Drug Testing Laboratories through proficiency testing and laboratory inspections. Over 31,000 open and blind proficiency specimens each year are prepared and sent by departmental personnel to the military laboratories to ensure that results are reported with 100% accuracy. Continued laboratory certification for each DoD Drug Testing Laboratory is maintained through vigorous quarterly inspections conducted by division personnel and civilian toxicologists. Departmental personnel contribute immeasurably to the continuing success of the DoD Drug Testing Program and the decline of drug use by military personnel. This is accomplished by development of new procedures to analyze drugs at lower concentrations using cutting-edge technology (eg, d-amphetamine, d-methamphetamine), conducting prevalence testing for emerging drugs of abuse (eg, methadone), and providing expert witness testimony at military courts martial and other federal court proceedings.
- The Forensic Toxicology Program Development Department keeps our personnel, and the services that we provide to our customers, on the cutting edge of forensic toxicology through program development initiatives tailored to meet the varied needs of our customers. For Operation Iraqi Freedom, we developed a method to provide evidence of exposure to chemical warfare agents. The already broad scope of toxicological agents that we can detect was further widened by developing methods to analyze for fentanyl (narcotic analgesic), psilocin (mushroom), mescaline (peyote), RDX (high-energy explosive), and hallucinogenic tryptamines.

CONSULTATION

The division reported 10,0015 cases in 2005. Average turnaround time was 3.2 days.

Type of Case		Source of Case	
Aircraft Incidents.	2,916	USA	5,042
Air Fatalities	109	USAF	2,199
Criminal/Investigative	5,250	USN	1,754
Postmortem	1,326	USMC	31
Quality Controls	338	USCG	169
Surveys	76	Civilian/Other	406
		QC/Surveys	414
TOTAL	10,015	TOTAL	10,015

LITIGATION SUPPORT

Military and civilian toxicologists are often asked to provide expert witness testimony in federal court proceedings. The Quality Assurance division of AFIP is responsible for responding to litigation, Freedom of Information Act (FOIA) discovery, and other special data requests (eg, DoD Quality Assurance Laboratory (DoDQA)). The number and types of requests are shown in the table below:

Branch Service	Certified Lab Reports	DoD QA Requests	Discover Requests	FOIA	Litigation Package	Total
CIV	8			1	19	28
USA	3		1		20	24
USAF	2	1	9		18	30
USMC					1	1
USN	1	4			2	7
Total	14	5	10	1	60	90

OPERATIONS***Expert Witness Testimony/Consultations***

Military/federal/civilian expert testimony and litigation support (includes all cases scheduled and rescheduled for which expert witness testimony/consultation and/or litigation support was provided):

January 2005

District Court, Alexandria, Va, E Shimomura (3)
 Petersen AFB, Colo, D Lesser
 Ft Bragg, NC, J Jemionek, A Jacobs
 Barksdale AFB, La, T Bosy
 Las Vegas, Nev, B Paul
 Goodfellow AFB, Tex, B Paul
 Pope AFB, NC, M Smith
 Ft Polk, La, J Jemionek

February 2005

Little Rock AFB, Ark, J Jemionek, T Bosy
 District Court, Greenbelt, Md, E Shimomura, B Levine
 Channel Island ANG, Calif, T Bosy
 Air National Guard (telephone testimony), T Bosy
 Fairchild AFB, Wash, J Jemionek
 Vandenberg AFB, Calif, A Jacobs (2)
 Norfolk, Va, B Paul, D Lesser
 District Court, Alexandria, Va, E Shimomura, J Jemionek
 District Court, Washington, DC, J Jemionek (3)
 Beale AFB, Calif, M Smith

March 2005

Charleston AFB, SC, B Paul
Wright-Patterson AFB, Ohio, T Bosy
District Court, Alexandria, Va, E Shimomura (2)
Beale AFB, Calif, T Bosy
Manheim, Germany, J Jemionek

April 2005

Travis AFB, Calif, M Smith
Beale AFB, Calif, T Bosy
District Court, Alexandria, Va, E Shimomura
Mildenhall, UK, T Bosy
Langley AFB, Va, M Smith
Quantico, Va, B Paul
Little Rock AFB, Ark, J Jemionek
Randolph AFB, Tex, B Paul
District Court, Washington, DC, E Shimomura (2)
San Diego, Calif, B Paul
District Court, Greenbelt, Md, B Levine

May 2005

Ft Benning, Ga, E Shimomura
Cannon AFB, NM, B Paul
Mildenhall, UK, T Bosy
USS Gladiator (telephone testimony), J Jemionek
District Court, Washington, DC, E Shimomura
Eglin AFB, Fla, M Smith
Offutt AFB, Neb, E Shimomura
Kirtland AFB, NM, M Smith, J Jemionek
Wiesbaden, Germany, M Smith
Ft Wainwright, Alaska, T Bosy

June 2005

Ft Bliss, Tex, A Jacobs, E Shimomura
Ft Riley, Kans, B Paul
District Court, Washington, DC, E Shimomura
Charleston, SC, M Smith
District Court, Alexandria, Va, E Shimomura (2)
District Court, Greenbelt, Md, B Levine
Ft McPherson, Ga, M Smith (2)
Aviano, Italy, T Bosy
Ft Campbell, Ky, A Jacobs (2)
Lackland AFB, Tex, J Jemionek
Robins AFB, Ga, J Jemionek
Ft Carson, Colo, J Jemionek

July 2005

Andrews AFB, Md, J Jemionek
Eglin AFB, Fla, B Paul
Ft McPherson, Ga, M Smith
District Court, Alexandria, Va, E Shimomura
Altus AFB, Okla, J Jemionek

August 2005

Eglin AFB, Fla, M Smith, E Shimomura
Ramstein AFB, Germany, J Jemionek
District Court, Alexandria, Va, E Shimomura (2)
Scott AFB, Ill, M Smith
Quantico, Va, T Bosy (2)
Balad, Iraq, D Lesser
District Court, Washington, DC, E Shimomura

September 2005

Stuttgart, Germany, D Lesser
 District Court, Washington, DC, E Shimomura
 Ft Drum, NY, M Smith
 Ft Bragg, NC, J Jemionek
 District Court, Alexandria, Va, E Shimomura
 Little Rock AFB, Ark, E Shimomura
 Mildenhall, UK, M Smith

October 2005

USS Dewert, M Smith
 Norfolk, Va, D Lesser
 Dover AFB, Del, J Jemionek
 Edwards AFB, Calif, J Jemionek
 District Court, Greenbelt, Md, B Levine
 Laughlin AFB, Tex, M Smith
 District Court, Washington, DC, E Shimomura
 Hanau, Germany, M Smith
 Ft Drum, NY, E Shimomura
 Offutt AFB, Neb, J Jemionek
 Norfolk, Va, B Paul, D Lesser

November 2005

District Court, Alexandria, Va, E Shimomura
 Ft Carson, Colo, B Paul
 District Court, Washington, DC, E Shimomura
 Luke AFB, Ariz, J Jemionek
 District Court, Greenbelt, Md, M Smith
 Wright-Patterson AFB, Ohio, M Smith
 Ft Drum, NY, K Todorov
 Andrews AFB, Md, J Jemionek

December 2005

Ft Drum, NY, M Smith
 Little Rock AFB, Ark, J Jemionek (2)
 Robins AFB, Ga, M Smith
 Brooks AFB, Tex, B Paul
 Wright-Patterson AFB, Ohio, M Smith
 District Court, Alexandria, Va, E Shimomura
 MacDill AFB, Fla, J Jemionek
 Dover AFB, Del, M Smith

DoD Quality Assurance Drug Laboratory Inspections

1. January 2005: Army Drug Testing Laboratory, Tripler, Hawaii, A Jacobs, M Smith.
2. January 2005: Navy Drug Testing Laboratory, Jacksonville, Fla, D Lesser, T Bosy.
3. March 2005: Navy Drug Testing Laboratory, San Diego, Calif, A Jacobs, J Jemionek.
4. April 2005: AF Drug Testing Laboratory, Brooks City Base, Tex, A Jacobs, T Bosy.
5. April 2005: Army Drug Testing Laboratory, Ft Meade, Md, C Dunkley, D Lesser.
6. April 2005: Navy Drug Testing Laboratory, Great Lakes, Ill, C Dunkley, J Jemionek.
7. May 2005: Army Drug Testing Laboratory, Tripler, Hawaii, C Dunkley, D Lesser.
8. May 2005: Navy Drug Testing Laboratory, Jacksonville, Fla, J Jemionek, K Todorov.
9. July 2005: Navy Drug Testing Laboratory, San Diego, Calif, D Lesser, K Todorov.
10. August 2005: AF Drug Testing Laboratory, Brooks City Base, Tex, D Lesser, J Jemionek.
11. August 2005: Army Drug Testing Laboratory, Ft Meade, Md, B Paul, K Todorov.
12. August 2005: Navy Drug Testing Laboratory, Great Lakes, Ill, D Lesser, T Bosy.
13. September 2005: Army Drug Testing Laboratory, Tripler, Hawaii, J Jemionek, T Bosy.
14. September 2005: Navy Drug Testing Laboratory, Jacksonville, Fla, A Jacobs, C Dunkley.
15. September 2005: Army Drug Testing Laboratory, Ft Meade, Md, Civilian Drug Testing Laboratory Inspection, M Smith.
16. November 2005: Navy Drug Testing Laboratory, Great Lakes, Ill, B Paul, J Jemionek.
17. November 2005: Navy Drug Testing Laboratory, San Diego, Calif, C Dunkley, K Todorov,

- D Lesser.
18. December 2005: AF Drug Testing Laboratory, Brooks City Base, Tex, A Jacobs, C Dunkley, D Lesser.
 19. December 2005: Army Drug Testing Laboratory, Ft Meade, Md, C Dunkley, D Lesser, K McCart, K Todorov.

National/International Consultations

1. Navy Drug Screening Laboratory, Jacksonville, Fla, Adulteration testing of selected specimens that showed unusual immunoassay results, B Paul.
2. Addiction Research Center, NIH, Baltimore, Md, Clinical studies of cocaine administered to humans, B Paul.
3. NASA, Washington, DC, Space Shuttle Columbia.
4. Defense Threat Reduction Agency, Washington, DC, Review of DoD/NATO grant proposal regarding development of countermeasures to exposure to biological and chemical weapons, D Lesser, T Bosy.
5. Staff Judge Advocate, Mildenhall AFB, UK, M Smith.
6. Staff Judge Advocate, Ft Drum, NY, M Smith.
7. Staff Judge Advocate, Robins AFB, Ga, M Smith.
8. Staff Judge Advocate, Dover AFB, Del, M Smith.
9. Staff Judge Advocate, Vandenberg AFB, Calif, M Smith.
10. Staff Judge Advocate, Pope AFB, NC, M Smith.

EDUCATION

Faculty Appointments

Clinical Associate Professor, University of Maryland School of Medicine, Department of Pathology, B Levine.

Lectures

1. March 2005: Alberta Society of Human Toxicology, "Toxicology in action: court cases," M Smith.
2. March 2005: DoD Sexual Assault Response Training Conference, "The toxicology of sexual assault," J Jemionek.
3. May 2005: Harvard Associates for Police Science, "Use of toxicological information in the final diagnosis," B Levine.
4. July 2005: Marine Corps Senior Leadership Conference, "Forensic drug testing services provided by the Toxicology Division of the Office of the Armed Forces Medical Examiner," J Jemionek.
5. October 2005: OAFME-Toxicology, "Expert witness I," M Smith, A Jacobs.
6. October 2005: Harvard Associates for Police Science, "Use of toxicological information in the final diagnosis," B Levine.
7. October 2005: OAFME-Toxicology, "Expert witness II," M Smith, A Jacobs.
8. October 2005: OAFME-Toxicology, "Expert witness III," M Smith, A Jacobs.
9. November 2005: OAFME-Toxicology, "Expert witness IV," M Smith, A Jacobs.
10. November 2005: Navy Drug Screening Laboratory, Great Lakes, Ill, "Mechanism of mass fragmentation of codeine, morphine, oxycodone, and oxymorphone," B Paul.
11. November 2005: University of Maryland, "Forensic toxicology I," B Levine.
12. December 2005: University of Maryland, "Forensic toxicology II," B Levine.
13. December 2005: University of Maryland, "Forensic toxicology III," B Levine.

Presentations

1. New Orleans, La, 57th American Academy of Forensic Sciences Meeting, "Investigation of cocaine metabolite concentrations in postmortem cases," B Levine.
2. Nashville, Tenn, 35th Society of Forensic Toxicologists Meeting, "An improved method to determine ethyl glucuronide in urine using reversed-phase HPLC and pulsed electrochemical detection," B Levine.
3. Nashville, Tenn, 35th Society of Forensic Toxicologists Meeting, "A fatal therapeutic misadventure: management of pain with excessive overprescribing of opiate drugs," B Levine.
4. Nashville, Tenn, 35th Society of Forensic Toxicologists Meeting, "Tizanidine distribution in a postmortem case," D Cox.
5. Nashville, Tenn, 35th Society of Forensic Toxicologists Meeting, "Cyclobenzaprine

- (Flexeril®) concentrations in postmortem cases," B Levine.
6. Nashville, Tenn, 35th Society of Forensic Toxicologists Meeting, "Tissue distribution of loperamide and N-Desmethyloperamide following a fatal overdose," J Sklerov.
 7. Nashville, Tenn, 35th Society of Forensic Toxicologists Meeting, "Diethyl ether distribution in two postmortem cases," R DeRienz, D Cox.
 8. Nashville, Tenn, 35th Society of Forensic Toxicologists Meeting, "Quality assurance database management," K Todorov.
 9. Nashville, Tenn, 35th Society of Forensic Toxicologists Meeting, "Spectrophotometric detection of iodide in urine after oxidation to iodine," B Paul.
 10. San Antonio, Tex, Tri-Service Drug Testing Laboratory Meeting, "Standardized quality assurance monthly report: are we there?" K Todorov.
 11. San Antonio, Tex, Tri-Service Drug Testing Laboratory Meeting, "Drug testing laboratories quality assurance programs: let's standardize," K Todorov.
 12. San Antonio, Tex, Tri-Service Drug Testing Laboratory Meeting, "Use of para- and meta-hydroxy benzoylecgonine as a counter to specimen tampering defense," J Jemionek.
 13. San Antonio, Tex, Tri-Service Drug Testing Laboratory Meeting, "Case study involving cathinone, the active ingredient of Khat," J Holler.
 14. San Antonio, Tex, Tri-Service Drug Testing Laboratory Meeting, "AFIP investigation of confirmation negative 6 AM samples," P McDonough.
 15. San Antonio, Tex, Tri-Service Drug Testing Laboratory Meeting, "Overview of the Division of Forensic Toxicology, AFIP," J Magluilo.
 16. San Antonio, Tex, Tri-Service Drug Testing Laboratory Meeting, "Quantitative analysis of modafinil and its major metabolites in human blood and urine by LC/ESI(+)-MS," S Vorce.
 17. Seoul, Korea, 43rd Annual Meeting of the International Association of Forensic Toxicologists, "Method for detection of ecgonine and concentration profile of ecgonine in low benzoylecgonine-positive specimens," B Paul.
 18. Seoul, Korea, 43rd Annual Meeting of the International Association of Forensic Toxicologists, "Estimating time of last oral ingestion of cannabis from plasma THC and THCCOOH concentrations," M Smith.
 19. Jacksonville, Fla, Society of Armed Forces Medical Laboratory Scientists Meeting, "Forensic toxicology sample submission overview," J Kohler.
 20. Jacksonville, Fla, Society of Armed Forces Medical Laboratory Scientists Meeting, "Toxicology of sexual assault," J Kohler.

RESEARCH

Journal Articles

1. Moore KA, Levine B, Fowler D. A fatality involving metaxalone. *Forensic Sci Int.* 2005;149:249-51.
2. Sklerov J, Levine B, Moore KA, Allan C, Fowler D. Tissue distribution of loperamide and N-desmethyloperamide following a fatal overdose. *J Anal Toxicol.* 2005;29:750-4.
3. Paul BD, Lalani S, Bosy T, Jacobs AJ, Huestis MA. Concentration profiles of cocaine, pyrolytic methyl ecgonine and thirteen metabolites in human blood and urine: determination by gas chromatography-mass spectrometry. *Biomed Chromatogr.* 2005;19:677-88.
4. Paul BD, Jacobs AJ. Spectrophotometric detection of iodide and chromic (III) in urine after oxidation to iodine and chromate (VI). *J Anal Toxicol.* 2005;29:658-63.
5. Sklerov J, Levine B, Moore KA, King T, Fowler D. A fatal intoxication involving the ingestion of 5-methoxy-N, N-dimethyltryptamine in an 'ayahuasca' preparation. *J Anal Toxicol.* 2005;29:838-41.
6. Holler J, Vorce S, Bosy T, Jacobs A. Quantitative and isomeric determination of amphetamine and methamphetamine from urine using a nonprotic elution solvent and R-(-)-alpha-methoxy-alpha-trifluoromethylphenylacetic acid chloride derivatization. *J Anal Toxicol.* 2005;29:652-7.
7. Huestis MA, Barnes A, Smith ML. Estimating the time of last cannabis use from plasma delta9-tetrahydrocannabinol and 11-nor-9-carboxy-delta9-tetrahydrocannabinol concentrations. *Clin Chem.* 2005;51:2289-95.

Book Chapter

Levine B, Moore KA. Interpretation of postmortem drug measurements. In: *Encyclopedia of Forensic and Legal Medicine*. London, UK: Academic Press; 2005:203-11.

Projects

1. Clinical studies of various routes of administration of cocaine to human subjects and the development of methods to identify the cocaine metabolites.
2. Detection and measurement of zolpidem (Ambien®) in tissues.
3. Detection and measurement of tizanidine (antispasmodic) in tissues.
4. Methadone and methadone metabolite prevalence testing.
5. Drugs of abuse testing in saliva.
6. Tissue distribution of loperamide (narcotic-antidiarrheal) overdose.
7. First case study reported of the tissue distribution of a fatal drug interaction/overdose from 5-methoxy-N, N-dimethyltryptamine, N, N-dimethyltryptamine, and beta carbolines.
8. Tissue distribution and case studies of two amlodipine (antihypertensive) suicidal overdoses.
9. Detection and measurement of the poison gas and warning agent chloropicrin in a whole-building, fumigation fatality.
10. Detection and measurement of metformin (antihyperglycemic) in 2 suspected overdoses.
11. Developed a GC/MS method for simultaneous detection and quantitation of 13 benzodiazapines.
12. Ethyl glucuronide (related to alcohol use) measurement in postmortem blood.
13. Methadone and methadone metabolite detection and quantitation by liquid chromatography/mass spectrometry (LC/MS).
14. Modafinil (used in treatment of narcolepsy and a substitute for amphetamine) detection and quantitation by LC/MS.
15. Cathinone (Khat; very similar pharmacological properties to amphetamine) detection and quantitation by gas chromatography/mass spectrometry (GC/MS) and LC/MS.
16. Combined cocaine and cocaine metabolite (BZE) method for detection and quantitation by GC/MS.
17. Propoxyphene and nor-propoxyphene detection and quantitation by GC/MS.
18. Vecuronium and pancuronium detection and quantitation by GC/MS.

PROFESSIONAL ACTIVITIES

Proficiency Exams

1. Ran the DoD Quality Assurance Open and Blind Drug Testing Proficiency Program worldwide with a total of 31,919 Quality Control (QC) specimens sent and analyzed in CY05: 4,210 military open proficiency specimens, 17,280 military blind proficiency specimens, 405 civilian proficiency specimens, 24 special testing specimens, and 10,000 prevalence study specimens.
2. Participated in 7 external proficiency tests (AL-1 (volatiles), SO (oximetry), UDC (urine drug confirmation), UT (urine toxicology), FTC (blood forensic toxicology), T (toxicology), NHTSA (ethanol)).
3. Performed in-house proficiency testing for analytes not included in external proficiency tests (eg, chloroquine, propranolol, and GHB).
4. The Division of Forensic Toxicology had two inspections: College of American Pathology (CAP; October 4, 2005) and American Board of Forensic Toxicology (ABFT; October 1, 2005). CAP was an on-site inspections whereas ABFT was a mid-cycle review.

Manuscripts/Research Proposals Reviewed

1. *Journal of Analytical Toxicology*, B Levine (4), D Lesser (2), M Smith (2)
2. *Clinical Chemistry*, B Levine (2)
3. *American Journal of Forensic Medicine and Pathology*, B Levine (6)
4. *Society of Forensic Toxicology*, J Jemionek (3)
5. Grant Review, Defense Threat Reduction Agency, Joint Science and Technology Office for Chemical and Biological Defense, Medical Chemical and Biological Defense Division (48 grants representing \$48M in research funds), D Lesser, T Bosy.

Editorial Boards

1. *Journal of Analytical Toxicology*, B Levine
2. *American Journal of Forensic Medicine and Pathology*, B Levine

National Panels

1. Navy Medical Logistics Command Technical Evaluation Board: B Paul, D Lesser, J Jemionek.
2. DoD Biochemical Testing Advisory Board: A Jacobs (Chair), T Bosy, J Jemionek, D Lesser.
3. DoD Laboratory Certification Inspection Program: A Jacobs, D Lesser, J Jemionek, C Dunkley, K Todorov, M Smith.
4. Drug Testing Advisory Board, Department of Health and Human Services, Rockville, Md: M Smith.

DIRECTORATE OF CLINICAL SCIENCES



Christopher R. Owner, PhD
Director, Clinical Services

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as*
**ARMY MEDICAL
MUSEUM**
1862

**ADVANCED MEDICAL EDUCATION (DME)
TELEMEDICINE AND DISTANCE LEARNING
MOLECULAR PATHOLOGY
SCIENTIFIC LABORATORIES
RADIOLOGIC PATHOLOGY
REPOSITORY & RESEARCH SERVICES
CENTER FOR SCIENTIFIC PUBLICATIONS
BIOPHYSICS**



Christopher R. Owner, PhD
Chair
Date of Appointment — 4 August 1997

ADVANCED MEDICAL EDUCATION (DME)

ORGANIZATION

The department is organized by function and comprises workshop and seminar design and development, residents/fellows programs, text-based education, Web-based instruction, meeting planning, marketing, art and graphics, study sets, audiovisual, and accounting. The department chair reports to the Principal Deputy Director. The Oversight Committee for Continuing Medical Education oversees the department's activities.

STAFF

Educational Division

Christopher R. Owner, PhD, Chair
Carlos H. Moran, Associate Director
Ricky H. Giles, Educational Coordinator (Pathology)
Mark L. Hovland, Educational Coordinator (Pathology)
Stephen W. Huntington, TSgt, USAF, Educational Coordinator (Pathology)
Carl Williams, Educational Coordinator (Radiology)
Monte D. Grace, HM2, USN, Educational Coordinator (Radiology)
Virginia A. McMillan, Visual Information Specialist

Administrative

Lisa P. Holmes, Meeting Management
Rene M. Sutton, Marketing Specialist
Kim L. Williams-Chasten, Office Management

AFIP/ARP Staff in Support of Mission

Frank Roberts, Histopathology QA
Nicole Jenkins, Histopathology QA
Estelle Page, Histopathology QA

Audiovisual

Joseph W. Frederick, Audiovisual Support Technician
Isaac J. Miller, Jr, Audiovisual Support Technician

Media Center

Harold I. White, SSgt, USAF, Study Set Coordinator

Ash Library

Prem Kalra, Library Consultant
Judith Paige, Library Technician
Daniel Mulholland, Library Technician

EDUCATIONAL DIVISION

IMPACT

The educational mission of the AFIP and ARP is to "carry out educational activities in partnership with government, academic, and private sector organizations, and to develop and apply expert information for the benefit of individuals and their health care professionals" (*AFIP Strategic Plan, 1997*). Specifically, we support continuing medical education (CME) in pathology and radiology and other related medical disciplines by providing specialized information

and advanced research and technology in the study of the pathophysiology of disease.

Scope

The courses we offer cover most of the subspecialties in pathology, including dentistry, and veterinary, forensic, and environmental medicine. We use numerous approaches to determine how courses are structured and what information to include. First and foremost is the material we glean from our secondary consultation service. The AFIP receives over 55,000 cases annually, many of which are difficult diagnostic cases that become resources for our educational activities. In the past 12 months, we have begun to obtain needs data from the Institute's Pathology Information System (PIMS). We employ numerous strategies to assess the needs of participants in AFIP's CME activities. The diagnostic agreement codes 1s, 3s, and 4s from the PIMS database are selected. This ongoing "dialogue" with the community of pathologists shapes the information selected for our workshops and didactic programs to accurately reflect the informational needs of military and civilian physicians. To augment these data, we also assess scientific advances in the field of pathology and medicine, seek the consensus of expert pathologists and clinicians, solicit feedback from potential and actual attendees at our programs, and monitor the media to determine issues and topics of importance to the public. The effectiveness of these audience assessment activities can be seen in the evaluation data.

Audience

Our primary audience includes military and civilian pathologists, radiologists, and related subspecialty clinicians in the United States, Canada, and worldwide. Secondary audiences include other physicians, health professionals, and interested ancillary medical support systems.

PROFESSIONAL ACTIVITIES

In 2005, the AFIP and ARP offered 33 live courses, one regularly scheduled conference (RSC) with 62 sessions, 24 Grand Rounds Videoteleconferences (VTCs), 38 Weekly Professional Staff Conferences, 6 Web-based courses, 2 Journal Club meetings, and Legal Medicine's "Open File," sent to 7,905 pathologists, clinicians, legal medicine professionals, veterinary pathologists, radiologists, dentists, forensic anthropologists, military and civilian residents, and professionals in related disciplines.

Training

The department coordinates all training/visits to the AFIP and ensures that all DoD guidelines and regulations are adhered to. The Training Office serves as liaison between the AFIP and the Office of the Army Surgeon General (OTSG) and/or the Department of State, as appropriate. We ensure that all training initiatives comply with governing regulations and maintain compliance with approved international or applicable affiliation agreements.

In addition to services available through our department, the AFIP offers trainees/visitors one-on-one instruction with staff pathologists, and an opportunity to participate in hands-on training/study programs, rotations, fellowships, and a variety of staff conferences provided by specialized departments within the Institute.

The Training Office processed approximately 343 requests from foreign nationals to attend Department of Medical Education and Radiology courses, and coordinated approximately 247 interdepartmental training arrangements, earning the Institute over \$50,000 in training-fee reimbursables.

Marketing

In 2005, the Marketing Department conducted activities on behalf of 23 seminars, workshops, and online training sessions. Marketing targeted anatomic and clinical pathologists, radiologists and veterinarians either in practice or serving in residencies. This year the department launched a new course entitled "Sexual Assault Response Team Training Program," targeted to physicians, nurses, nurse practitioners, and others involved as first responders. In addition to the design and mailing of 85,000 brochures, numerous advertisements were placed in journals, newsletters, and on websites, including that of the AFIP, which provides detailed course information and online registration. This year, approximately 35% (15% to 50%) of our registrants came through the Internet. To guarantee course information is disseminated to targeted individuals in a timely manner, we are sending out more emails, which is more cost-effective. As a result, Internet registration has increased by 40%.

We are continuing to develop and promote our Medical Education Fund to help defray some of the costs of conducting our programs. The fund seeks grants and exhibitors to help defray

the cost of preparing syllabi, producing brochures, and marketing existing courses. We have enlisted support from ARP, the Henry Jackson Foundation, and the T.R.U.E. Research Foundation to help us raise funds from the commercial sector.

Deployments

RM Sutton:

- 1. January 2005, Washington, DC, TRICARE Annual Meeting, AFIP exhibit staff.
- 2. February 2005, San Antonio, Tex, USCAP, AFIP exhibit staff.
- 3. April 2005, San Antonio, Tex, ACTUR, assistant course coordinator.
- 4. July 2005, San Antonio, Tex, Association of the United States Army Conference 2005, AFIP exhibit staff.
- 5. August 2005, Louisville, Ky, Force Health Protection Conference, AFIP exhibit staff and public affairs and marketing training.
- 6. October 2005, Nashville, Tenn, Association of Military Surgeons of the United States Annual Meeting, AFIP exhibit staff.

AUDIOVISUAL DIVISION

In 2005, the Audiovisual Division supported more than 18 AFIP continuing medical education courses held in the Washington metropolitan area (except courses held at the National Library of Medicine’s Lister Hill Auditorium and the National Transportation Safety Board in Ashburn, Va). The division supported 35 Weekly Professional Staff Conferences, 10 HIPAA training sessions requiring Web connectivity, 10 or more Transition Senate meetings by Col Fein, 10 Callender-Binford lectures, 10 retirement and promotion ceremonies, the ACTUR conference/workshop in New Orleans, La, and a number of in-house workshops and classes. We also supported a number of training activities for WRAMC, including:

- 1. Medical Management of Chemical and Biological Casualty Course (MMBC)
- 2. Medical Emergency Ionizing Radiation Courses (MEIR)
- 3. Military training for the troops (WRAMC)

In 2005 we purchased 4 new LCD projectors.

1. PROPERTY VALUE	
a. \$ 225,385.00	
b. 118 items listed on hand receipt	
2. A/V PROPOSED BUDGET	
a. Equipment (new and replacement)	\$ 12,000.00
b. Supplies	\$ 1,250.00
c. Maintenance/repair	\$ 3,500.00
Total	\$ 16,750.00
3. A/V REQUESTS FOR SUPPORT	
a. In-house	254
b. CME courses	18
c. WRAMC	36
d. Outside organizations	3

MEDIA CENTER

1. PUBLIC SERVICES	
a. Sets used by AFIP personnel	27
b. Interlibrary loans	
Federal	97
Non-federal	306
c. Ready reference	
Media Center	35
Phone calls	415
2. TECHNICAL SERVICES	
a. New sets acquired	
Veterinary Department	7
b. Loans to civilians	\$18,165.50

ASH LIBRARY

IMPACT

During 2005, Ash Library subscribed to 318 print journals. To make our journal collection more usable, we provide online access to 202 journals for our users. This requires constant effort, because publishers frequently change the terms and conditions for providing online access to their journals. Ash Library also subscribes to ProQuest Health and Medical online database, which contains 1,859 journals, most with full text. We also provide online access to 12 to 15 journals, depending on budgetary limits, through Ovid and OCLC, which are not available from our current vendors. Our book collection of 4,297 titles is regularly updated. We welcome suggestions from users about buying titles for the library collection, and act upon requests when funds allow. Ash Library staff constantly strive to provide prompt service to library users in a user-friendly environment.

ACCOMPLISHMENTS

1. Rearranged entire collection to create space for incoming journal issues, postponing for at least 30 months the need to remove back issues of journals to storage.
2. Started free subscription for 2 military journals.
3. Processed most interlibrary loan requests within 24 hours.
4. Completed, within prescribed time, limit paperwork required by Fedlink to initiate bid process for procurement of journals.
5. Successfully installed new OCLC cataloging Connexion client.
6. Created system of identifying shelved journals to facilitate searches.

Book Circulation

Checked out	141
Checked in	163
Renewed	191

Interlibrary Loans

Borrowed	1,569
Loaned	20

Acquisitions

Book titles added	108
Serial titles deleted	2
Serial titles added	2
Dtic Searches	4

Collections

Total book titles	4,297
Current print journal titles	318
Online journals available	2,061

DEPARTMENTAL TRAINING STUDY

	Federal Attendees	Non Federal Attendees	Intern'l Attendees	Training Days Fed	Training Days Non-Fed	Training Days Intern'l	Units
Armed Forces Medical Examiner	6	0	0	578	0	0	4,624
Cardiovascular Path	0	0	0	0	0	0	0
Cellular Pathology	5	0	0	105	0	0	840
Center for Advanced Pathology	0	0	0	0	0	0	0
Dermatopathology	19	26	1	607	575	10	9,536
Environmental & Toxicologic Path	0	1	0	0	11	0	88
GU Pathology & Nephropathology	14	7	3	266	462	48	6,208
Gynecologic & Breast Pathology	8	7	1	110	108	10	1,824
Hematopathology	3	0	0	271	0	0	2,168
Hepatic & Gastrointestinal Pathology	14	13	6	562	504	129	9,560
Infectious Dis, AIDS & Microbiology	0	3	0	0	25	0	200
Neuropathology & Ophthalmic Path	12	20	0	305	702	0	8,048
Oral Pathology	2	2	0	145	45	0	1,520
Orthopedic Pathology	1	4	1	10	52	21	664
Otolaryngic Pathology	0	1	0	0	5	0	40
Pulmonary & Mediastinal Pathology	4	8	2	58	506	96	5,280
Radiologic Pathology	0	0	0	0	0	0	0
Scientific Laboratories	0	0	0	0	0	0	0
Soft Tissue Pathology	6	9	7	89	282	222	4,744
Telepathology	4	0	0	20	0	0	160
Veterinary Pathology	13	14	0	1,716	137	0	14,824
SUBTOTAL	111	115	21	4,842	3,414	536	70,328
TOTAL			247			8,792	70,328

LONG COURSES

	Federal Attendees	Non Federal & International Attendees	Federal Training Days	Non Federal & International Training Days	Units
Anatomic Pathology	35	113	245	791	8,288
Basic Sciences ENT	13	11	182	154	2,688
Neuropathology	6	7	84	98	1,456
Neuropathology	0	0	0	0	0
Orthopedic Pathology	0	0	0	0	0
Radiologic Pathology	11	243	319	7,047	58,928
Radiologic Pathology	12	236	360	7,080	59,520
Radiologic Pathology	8	246	240	7,380	60,960
Radiologic Pathology	9	191	261	5,539	46,400
Radiologic Pathology	10	257	290	7,453	61,944
SUBTOTAL	104	1,068	1,981	35,542	300,184
TOTAL		1,172		37,523	300,184

SHORT COURSES

	Federal Attendees	Non Federal & International Attendees	Federal Training Days	Non Federal & International Training Days	Units
General Neuropathology	0	1	0	8	64
Developmental and Genetic Disorders	0	1	0	7	56
Tumors of the Central Nervous System	6	2	48	16	512
Patologia Quirurgica Temas Selectos Y Seminario De Laminas	1	63	3	189	1,536
Neurodegenerative Diseases	6	0	24	0	192
43 rd Annual Otolaryngology Head & Neck Surgery	13	11	182	154	2,688
Pathology in the Management of Otorhinolaryngology – Head and Neck Patients	1	6	4	24	224
2 nd Annual Laryngeal Function in Voice & Swallowing for Speech Language	4	59	4	59	504
20 th Annual Neuroradiology Course	24	66	48	132	1,440
43 rd Annual Neuropathology Review	25	111	125	555	5,440
Sexual Assault Response Team Training Program	117	19	585	95	5,440
42 nd Annual Forensic Identification & Emerging Technologies	77	59	385	295	5,440
Update of Renal Biopsies & Medical Renal Disease	3	23	9	69	624
Abdominal Imaging Course	4	8	20	40	480
18 th Annual Forensic Anthropology	10	56	50	280	2,640
14 th Descriptive Veterinary Pathology	14	61	70	305	3,000
38 th Annual Urological Pathology and Radiology Course	19	70	114	420	4,272
8 th Current Lab Animal Science Seminar	20	79	40	158	1,584
49 th Pathology of Laboratory Animals	41	129	164	516	5,440
Neuroradiology	2	18	10	90	800
Ophthalmic Pathology for Ophthalmologists	13	77	65	385	3,600
Musculoskeletal Radiology	8	8	40	40	640
16 th Annual GI Surgical Path &	20	72	40	144	1,472
Endoscopic Biopsies of the GI Tract					
25 th Annual Hepatopathology: The Interpretation of Liver Biopsies	17	60	51	180	1,848
5 th Annual Soft Tissue Tumors	14	25	56	100	1,248
Basic Forensic Pathology	35	56	175	280	3,640
SUBTOTAL	494	1,140	2,312	4,541	54,824
TOTAL		1,634		6,853	54,824

VIDEO TELECONFERENCE

	Non Federal	Federal Attendees & International	Units
Orthopedic Pathology	28	0	28
Bladder Urothelium	16	0	16
HAART to Heart	2	0	2
Imaging of the Suprahyoid Neck	31	0	31
Precancerous Lesions of the GI	26	0	26
Bone Marrow DX of Leukemia	15	0	15
Molecular Diagnostics	34	0	34
Interstitial Pneumonias	21	0	21
Breast Pathology	29	0	29
GIST	79	0	79
GU Trauma	16	0	16
Unidentified Pulm Pathogens	57	0	57
Cornea	40	0	40
GISTS – Radiology	15	0	15
Sexually Transmitted Infections	5	0	5
Rad-Path: Retroperitoneum	9	0	9
Pathology of Fungal Diseases Part 2	4	0	4
Pathology of Fungal Diseases Part 1	14	0	14
Proficiency Testing	71	0	71
Malignant Myoepithelial Salivary Tumors	20	0	20
Vascular Diseases of the Liver	11	0	11
Teledermatopathology	22	0	22
Benign Lesions of the Mesentery	6	0	6
Pancreas	18	0	18
TOTAL	589	0	589

YEAR-ROUND TRAINING/EDUCATION

	Total Attendees	Days	Units	Hours Units
Legal Medicine Open File	2,216	1,385	5	11,080
RTPA Web Conference	380	108	36	13,680
Weekly Professional Staff Conference	1,039	38	1	1,039
Histopathology Quality Assessment Program	482	964	16	7,712
Virtual Gastrointestinal Endoscopic Biopsy	23	14,375	5	115
Online Urologic Pathology Series	26	6.5	2	52
Registry of Oral & Maxillofacial Pathology	84	126	12	1,008
Callender-Binford	13	1,643	8	13,144
TOTAL	4,263	7,296.25	85	47,830

TOTAL NUMBER OF ATTENDEES/DAYS/UNITS

	Attendees	Days	Units
GRAND TOTALS	7,905	60,464.25	473,755



Bruce H. Williams, DVM, DACVP
Chair
Date of Appointment —1 October 1997

DEPARTMENT OF TELEMEDICINE

STAFF

Medical

Bruce H. Williams, DVM, DACVP
Ann M. Nelson, MD

Administrative

Daniel R. Butler, HMC, Systems Administrator
Roderick F. Herring, Senior Technical Support Services Specialist
David Draley, Web Developer
George P. Bessey, YN3, Support Services Specialist
Michele B. Richman, Supervisory Online Publisher/Editor
Bonnie L. Casey, Online Editor
Jason Siedor, Online Publisher
Kevin Jones, Online Publisher

IMPACT

- The AFIP's electronic consultation program is the largest of its kind in the world, and the most efficient in terms of case turnaround time and scope of services provided. The telemedicine program provides pathology consultation in near- or real-time, impacting at point of care and making significant contributions to patient care. This technology enables AFIP consultants to operate microscopes at remote sites, allowing the visualization of any field on the slide at any magnification. Real-time systems allow for increased concordance between diagnoses rendered on electronic and traditional consultations. AFIP staff are responsible for all phases of installation, maintenance, and service of these systems, and provide full consultative services and training to users.
- In 2005, the department assumed management of the Army Telepathology program from WRAMC. The department was awarded \$1.1 million dollars in August 2005 under the Army's Advances in Medical Practice (AMP) program. With this funding, the AFIP purchased 12 upgraded telepathology systems, adding capabilities for digital slide scanning and multiple slide transmission via an incorporated 50-slide loader. The upgraded systems will decrease requests for glass slides, increase the specificity of telepathology diagnoses, and allow for the development of new missions, including the use of telepathology for routine quality assurance activities.
- In 2005, the department premiered version 1 of AskAFIP™, linking the various knowledge bases and collections of case materials and authoritative resources published by AFIP staff (including the 3rd and 4th series of AFIP/ARP's tumor and non-tumor fascicles) to provide an innovative "just-in-time" educational experience to pathologists, radiologists, and related specialists in both the military and civilian medical communities. Version 1 includes the digital case repository, in which AFIP subject matter experts combine brief synopses of important disease entities, a wide range of pathologic and radiologic imagery, and links into PubMed articles and well-known medical texts, as well as a CME tracking model unique to the field. Extensive work on version 2 (due to premiere in spring 2006) was also completed in partnership with Information Manufacturing Corporation.

- Five virtual slide-based courses or conferences (Wednesday Slide Conference, Histopathology Quality Assurance Program, Anatomic Pathology 2005, Genitourinary Pathology 2005, and Registry of Oral and Maxillofacial Pathology Slide Conference) were offered online in 2005, as well as the 2005 version of the Registry of Toxicologic Pathology for Animals virtual conference. The department also provided online versions and portals for the 3rd and 4th series of the Atlas of Tumor Pathology and Atlas of Non-tumor Pathology, and the WHO fascicles on neoplasms of domestic animals.
- All of the Institute’s online offerings, and any associated CME, are available to military healthcare providers free of charge. Select offerings, including access to all of our slide-based online courses, are available to other government and civilian healthcare providers for a nominal fee.
- The department provides a wide range of virtual slide scanning for a variety of Institutional missions, including cases in which contributors would like blocks returned, various intra-mural research projects, and online consensus conferences.

CONSULTATION

<i>Cases</i>	<i>Completed</i>
Military	279
Federal (VA)	23
Civilian	42
Total	515

Overall cases decreased by 33% over 2004, most likely due to a variety of factors, such as uncertainty about the AFIP’s status as a result of the DoD’s recommendation under BRAC, establishment of rigid pricing schedules for civilian cases, and departure of several significant military contributors to the program. Adoption of the new mission of quality assurance via telepathology for Army laboratories (see below) should significantly increase our numbers in 2006 and beyond. Average turnaround time for 2005 remained below 3 hours. These numbers represent a continued focus on a militarily-relevant mission and improved overall cost-containment for the telemedicine mission.

EDUCATION

Courses: Department personnel participated as faculty in 8 courses in 2005.

Online Educational Products: The department provided updates or original design to 22 AFIP websites, extensive content to 7 AFIP websites, and extensive programming and editing services to the Digital Case Repository module of AskAFIP™.

Numerous publications were made available to online subscribers of the AFIP’s Online Pathology Services, including 31 editions of the ARP 3rd and 4th series of tumor and non-tumor fascicles, WHO fascicles on neoplasms of domestic animals, and the Atlas of Gastrointestinal Endoscopy and Endoscopic Biopsy.

PRESENTATIONS

1. February 2005: Washington, DC, AFIP Videoteleconference Grand Rounds, “HAART to heart: adverse effects of antiretroviral therapy,” AM Nelson.
2. March 2005: Durham, NC, Duke University Medical Center, Medical Microbiology Teaching Sessions, “Infectious disease pathology, A to Z,” AM Nelson.
3. March 2005: Durham, NC, Duke University Medical Center, Infectious Disease Grand Rounds, “Granulomas,” AM Nelson.
4. April 2005: Washington, DC, Gross Morbid Anatomy of Diseases of Animals, “Macroscopic description in veterinary pathology,” BH Williams.
5. April 2005: Washington, DC, AFIP Weekly Professional Staff Conference, “Global aspects of infectious disease pathology,” AM Nelson.
6. May 2005: Santa Cruz, Bolivia, International Academy of Pathology, Bolivian Division Annual Meeting, “AFIP: past, present and future” (presented in Spanish), AM Nelson.
7. May 2005: Santa Cruz, Bolivia, International Academy of Pathology, Bolivian Division Annual Meeting, “Granulomas” (presented in Spanish), AM Nelson.
8. May 2005: Santa Cruz, Bolivia, International Academy of Pathology, Bolivian Division Annual Meeting, “HIV and other sexually transmitted infections” (presented in Spanish), AM Nelson.
9. June 2005: Washington, DC, AFIP Descriptive Veterinary Pathology, “Macroscopic and

- microscopic descriptive veterinary pathology," BH Williams.
10. June 2005: St Louis, Mo, International Ferret Conference, "Gastrointestinal disease in the domestic ferret," BH Williams.
 11. July 2005: Baltimore, Md, The Johns Hopkins School of Public Health Course, "AIDS pathology," AM Nelson.
 12. August 2005: Beijing, China, 4th Asia-Pacific IAP Congress, "The altered host response in HIV infection and AIDS," AM Nelson.
 13. August 2005: Beijing, China, Peking Medical University, "The altered host response in HIV infection and AIDS," AM Nelson.
 14. August 2005: Jining, China, Jining Associated Hospital, "Global aspects of infectious disease pathology," AM Nelson.
 15. August 2005: Washington, DC, Pathology of Laboratory Animals Course, "Diseases of the domestic ferret," BH Williams.
 16. October 2005: San Diego, Calif, Pathology Visions Conference, "Virtual slides: the AFIP experience," DR Butler.
 17. October 2005: Washington, DC, AFIP Weekly Professional Staff Conference, "What's new in distance learning?" AM Nelson, BH Williams.

Exhibits

1. USCAP Meeting, Washington, DC, March 2005.
2. Force Health Protection Conference, Louisville, Ky, August 2005.
3. Association of the United States Army, San Antonio, Tex, October 2005.
4. Association of Military Surgeons of the United States, Nashville, Tenn, November 2005.

RESEARCH

Journal Articles

1. Jeong WI, Do SH, Sohn MH, Yun HS, Kwon OD, Kim TH, Jeong DH, Williams BH, Jeong KS. Hepatocellular carcinoma with metastasis to the spleen in a Holstein cow. *Vet Pathol.* 2005;42:230-2.
2. Schiro BJ, Travis BR, Kruspe R, Nelson AM, Beech SL, Imsais KY, Lopez FA. A young man with back and chest wall pain for three months. *J La State Med Soc.* 2005;157:252-6.

Projects: One active research protocol was conducted in the department in 2005, Telepathology Consultation at the AFIP, which has resulted in 5 articles on telepathology and digital imaging, and is currently providing raw data for a sixth.

Collaborators

Military/Federal

1. Department of Pathology, WRAMC: Feasibility study of real-time pathology consultation.
2. Department of Pathology, Keesler AFB: Feasibility study of telepathology in the Air Force.
3. NASA: Feasibility study of virtual slides in aerospace research.
4. USUHS: Feasibility of virtual slide study sets in undergraduate education.
5. USUHS: Ferrets as an animal model of E coli-induced hemolytic-uremic syndrome.
6. NCI: Familial testicular cancer: a virtual consensus conference.

Civilian

1. ARP: Online fascicles of tumor pathology.
2. American Telemedicine Association: Telemedicine Special Interest Working Group.
3. Illumea Corporation: Feasibility study of real-time pathology consultation.
4. Aperio Inc: Feasibility study of virtual slide scanning in consultative practice.
5. Information Manufacturing Corporation: Ask AFIP™.

International

Danish Veterinary Institute, Aarhus, Denmark: Immunophenotyping of ferret lymphoma.

Interdepartmental

1. Department of Genitourinary Pathology: Familial testicular neoplasia.
2. Department of Medical Education: Virtual slide usage in distributed learning.

PROFESSIONAL ACTIVITIES

Official Trips

1. March 2005, USCAP, DR Butler, AM Nelson, RF Herring.
2. June 2005, AUSA, DR Butler, RF Herring.
3. August 2005, Force Health Protection, DR Butler.
4. September 2005, AMSUS, D Draley.
5. October 2005, Ft Campbell/Ft Knox, Ky, DR Butler, RF Herring.
6. November 2005, LPMC, Wuerzberg AMC, RF Herring.

Manuscripts Reviewed

Members of the department reviewed 18 articles for the following professional journals:

1. *Veterinary Pathology*
2. *Histopathology*
3. *Pathology*

Editorial Boards

1. *Veterinary Pathology*, BH Williams
2. *Clinical Infectious Diseases*, Histopathology Editor, AM Nelson
3. *Pathology Research and Practice*, AM Nelson
4. *Annals of Diagnostic Pathology*, Section Editor, AM Nelson



Jeffery K. Taubenberger, MD, PhD
Chief
Date of Appointment — 1 January 1994

DEPARTMENT OF MOLECULAR PATHOLOGY

The department is organized into 2 laboratories:

Molecular Diagnostics Laboratory, Jack H. Lichy, MD, PhD, Director
Research Laboratory, Jeffery K. Taubenberger, MD, PhD, Chair

STAFF

Jeffery K. Taubenberger, MD, PhD, Staff Pathologist and Chair
(D) Sabrina M. Campbell, HM1, USN, Medical Technologist
(A) Vivien Dugan, PhD, Visiting Scientist
(A,D) Ruth England, ARP, Medical Technologist
(A) David Evers, PhD, Research Biologist
Thomas G. Fanning, PhD, Principal Investigator
Gerry Jin, MS, ARP, Research Biologist
Daisy Johnson, Medical Technologist
Amy E. Krafft, PhD, MT (ASCP), Medical Technologist
Jack H. Lichy, MD, PhD, Staff Pathologist and Director, Molecular Diagnostics Laboratory
Sherman McCall, LTC, MC, USA, Staff Pathologist
Pin-Yu Perera, PhD, ARP, Research Biologist
Jean Przybocki, BS, Medical Technologist
Zong-Mei Sheng, MD, PhD, Research Biologist
Mark M. Tsai, MS, Research Biologist
Ruxie Wang, PhD, ARP, Research Biologist

CONSULTATION

<i>Cases</i>	<i>Completed</i>
Military	14,706
VA	20
Civilian	102
Interdepartmental	306
Total	15,134

The Molecular Diagnostics Laboratory received 15,134 cases in consultation in 2005 (an equivalent caseload compared to 2004). Of these, 97% were primary molecular genetic consults from the US military. The remaining cases were intramural consults from 14 AFIP departments and direct consults from other institutions. On average, 1.1 different tests were requested per case, resulting in 16,190 separate molecular pathology assays completed in 2005.

Dr. Lichy, Dr. McCall, and Dr. Taubenberger participated in sign-out of molecular genetic and surgical pathology cases.

EDUCATION

Trainees: Department staff trained 7 individuals for a total of 140 training days. Trainees by category are listed below:

Trainee category	No. trained in 2005	Training days
Pathology residents	6	120
Students	1	20
Total	7	140

Pathology residents from the combined Walter Reed/Bethesda residency program received one-month rotations in molecular genetic pathology.

FACULTY APPOINTMENTS

1. Adjunct Faculty, Howard University Medical School, Washington, DC, JH Lichy.
2. Adjunct Faculty, Howard University Medical School, Washington, DC, JK Taubenberger.
3. Adjunct Faculty, Virginia Commonwealth University, Medical College of Virginia, Richmond, JK Taubenberger.
4. Consultant, National Cancer Institute, Laboratory of Pathology, Bethesda, Md, JK Taubenberger.
5. Assistant Adjunct Professor of Pathology, USUHS, S McCall.
6. Adjunct Professor for Undergraduate Instruction, University of Maryland University College, A Krafft.

RESEARCH

Journal Articles

1. Krafft AE, Russell KL, Hawksworth AW, Daum LT, Connolly JL, Gaydos JC, Ryan MA, Reid AH, McCall S, Taubenberger JK. Evaluation of PCR testing for influenza and adenoviruses using room temperature specimens as an augmented respiratory virus surveillance strategy. *J Clin Microbiol.* 2005;43:1768-75.
2. Glaser L, Stevens J, Zamarin D, Wilson IA, Garcia-Sastre A, Tumpey TM, Basler C, Taubenberger JK, Palese P. A single amino acid substitution in the 1918 influenza virus hemagglutinin changes the receptor binding specificity. *J Virol.* 2005;79:11533-6.
3. Holmes EC, Ghedin E, Miller N, Taylor J, Bao Y, St George K, Grenfell BT, Salzberg S, Fraser CM, Lipman DJ, Taubenberger JK. Whole genome analysis of human influenza A virus reveals multiple persistent lineages and reassortment events among recent H3N2 viruses. *PLoS Biol.* 2005;3:1579-89.
4. Ghedin E, Miller NA, Shumway M, Zaborsky J, Feldblyum T, Subbu V, Spiro D, Sitz J, Koo H, Bolotov P, Dernovoy D, Tatusova T, Bao Y, St George K, Taylor J, Lipman DJ, Taubenberger JK, Fraser CM, Salzberg SL. Tracking the evolution of the human influenza A virus with a large-scale sequencing project. *Nature.* 2005;437:1162-6. Epub 5 October 2005.
5. Taubenberger JK, Reid AH, Lourens RM, Wang R, Jin G, Fanning TG. Characterization of the 1918 influenza virus polymerase genes. *Nature.* 2005;437:889-93.
6. Tumpey TM, Basler CF, Aguilar PV, Zeng H, Solorzano A, Swayne DE, Cox NJ, Katz JM, Taubenberger JK, Palese P, Garcia-Sastre A. Characterization of the reconstructed 1918 Spanish influenza pandemic virus. *Science.* 2005;310:77-80.
7. Tumpey TM, Garcia-Sastre A, Taubenberger JK, Palese P, Swayne DE, Pantin-Jackwood MJ, Schultz-Cherry S, Van Rooijen N, Katz JM, Basler CM. Pathogenicity of influenza viruses with genes from the 1918 pandemic virus: functional roles of alveolar macrophages and neutrophils in limiting virus replication and mortality in mice. *J Virol.* 2005;79:14933-44.
8. Stevens J, Blixt O, Glaser L, Taubenberger JK, Palese P, Paulson J, Wilson IA. Glycan microarray analysis of the hemagglutinins from modern and pandemic influenza viruses reveals different receptor specificities. *J Mol Biol.* Epub December 2005.
9. Taubenberger JK, Reid AH, Fanning TG. Revealing a killer flu virus. *Sci Am.* 2005;292:62-71.
10. Holmes EC, Taubenberger JK, Grenfell BT. Heading off an influenza pandemic. *Science.* 2005;309:989.
11. Taubenberger JK. The virulence of the 1918 pandemic influenza virus: unraveling the

enigma. *Arch Virol.* 2005;19(Suppl):101-15.

Abstracts

1. Russell KL, Hawksworth AW, Osuna MA, Conolly JL, Irvine MD, Krafft AE, Taubenberger JK, Ryan MA. Evaluation of PCR tests for detection of influenza A using ambient temperature specimens: an update. 7th International Symposium on Respiratory Viral Infection, Curacao, Netherlands Antilles, 2005.
2. Ketten D, Arruda J, Cramer S, O'Malley J, Reidenberg J, McCall S, Craig J. Experimental measures of blast trauma in marine mammals. Environmental consequences of underwater sound. NOPP-ONR Review, Arlington, Va, 2005.
3. Ketten D, Cramer S, Arruda J, Brooks L, O'Malley J, Reidenberg J, McCall SA, Craig J, Rye K. Experimental measures of blast trauma in sea turtles. Environmental consequences of underwater sound. Office of Naval Research /N45/NSF(NOPP) Research Program Review, Crystal City, Va, 18 March 2005.

Book Chapters

1. Taubenberger JK. Chasing the elusive 1918 virus: preparing for the future by examining the past. In: Knobler S, Mack A, Mahmoud A, Lemon SM, eds. *The Threat of Pandemic Influenza: Are We Ready?* Washington, DC: National Academy of Sciences Press; 2005:69-89.
2. Krafft AE. Melioidosis (*Burkholderia pseudomallei*). In: Croddy EA, Wirtz JJ, Larsen JA, eds. *Weapons of Mass Destruction: An Encyclopedia of Worldwide Policy, Technology, and History.* Denver, Colo: ABC CLIO; 2005:183-4.
3. Krafft AE. Q fever bacterium (*Coxiella burnetii*). In: Croddy EA, Wirtz JJ, Larsen JA, eds. *Weapons of Mass Destruction: An Encyclopedia of Worldwide Policy, Technology, and History.* Denver, Colo: ABC CLIO; 2005:235-8.
4. Krafft AE. Tularemia (*Francisella tularensis*). In: Croddy EA, Wirtz JJ, Larsen JA, eds. *Weapons of Mass Destruction: An Encyclopedia of Worldwide Policy, Technology, and History.* Denver, Colo: ABC CLIO; 2005:288-92.

Projects: Departmental staff were principal investigators on 11 AFIP research protocols:

1. Experimental measurements of blast trauma. PI: S McCall.
2. Human ST5 gene in signal transduction and carcinogenesis. PI: JH Lichy.
3. Identification of influenza strains by molecular genetic techniques. PI: JK Taubenberger.
4. Identification of the source of the 1918 influenza A strain by RT-PCR. PI: JK Taubenberger.
5. Monitoring the response to cancer vaccines. PI: JH Lichy.
6. Serial analysis of gene expression (SAGE). PI: Z-M Sheng.
7. Serial analysis of gene expression. PI: JK Taubenberger.
8. Molecular etiology of amyloidosis. PI: S McCall.
9. HER-2/neu gene copy number and mRNA expression. PI: S McCall.
10. Frequency of HFE gene mutation. PI: Z-M Sheng.
11. Parkinson's disease. PI: S McCall.

Collaborators

Military/Federal

1. Tony Beugelsdijk, PhD, Los Alamos National Laboratory, NM
2. Nancy Cox, PhD, CDC, Atlanta, Ga
3. Joseph Esposito, PhD, CDC, Atlanta, Ga
4. David Gillespie, MD, Department of Cardiovascular Surgery, WRAMC
5. J. Silvio Gutkind, PhD, NIH, Bethesda, Md
6. Kevin Holmes, PhD, National Institute of Allergy and Infectious Diseases, NIH, Bethesda, Md
7. Peter Jahrling, PhD, USAMRIID, Ft Detrick, Md
8. Ann Marini, MD, PhD, Department of Neurology, USUHS, Bethesda, Md
9. Constance T. Noguchi, PhD, Laboratory of Chemical Biology, NIH, Bethesda, Md
10. George Peoples, MD, Department of Surgery, WRAMC
11. Steve Rick, PhD, NCI, Frederick, Md
12. David Wayne, DVM, PhD, USDA, Athens, Ga
13. Sherif Zaki, MD, CDC, Atlanta, Ga

Civilian

1. George Happ, PhD, University of Alaska, Fairbanks

2. David Izon, PhD, University of Pennsylvania, Philadelphia
3. Darlene Ketten, PhD, Woods Hole Oceanographic Institute, Woods Hole, Mass
4. Kenneth W. Kinzler, MD, Johns Hopkins Oncology Center, Molecular Genetics Laboratory, Baltimore, Md
5. Scott Layne, MD, UCLA
6. Sherry Li, MD, Department of Pathology, Columbia University College of Physicians and Surgeons, New York, NY
7. Peter Palese, PhD, Department of Microbiology, Mt Sinai School of Medicine, New York, NY
8. Susan Ropp, PhD, South Dakota State University, Brookings
9. Adolfo Garcia-Sastre, PhD, Department of Microbiology, Mt Sinai School of Medicine, New York, NY
10. Xio Shu, PhD, University of South Carolina Medical School
11. Richard Slemons, DVM, PhD, Department of Pathology, Ohio State University School of Veterinary Medicine, Columbus

International

1. Ian Brown, PhD, Weybridge Veterinary Laboratories Agency, Weybridge, Addlestone, UK
2. John Oxford, PhD, London Hospital, UK

Interdepartmental

1. Department of Hematologic and Lymphatic Pathology: molecular genetic changes in lymphomas.
2. Department of Pulmonary and Mediastinal Pathology: molecular genetic changes in lung tumors.
3. Department of Soft Tissue Pathology: KIT mutations in gastrointestinal tumors, and evaluation of t(X;18) translocations in synovial sarcomas.
4. Department of Veterinary Pathology: molecular characterization of marine mammal morbilliviruses and papillomaviruses.

PROFESSIONAL ACTIVITIES

Honors

A paper on the genome of the 1918 influenza virus, published in *Nature* by Dr. Taubenberger and coauthors, was named one of the "Discoveries of the Year" by *Science Magazine* and "Paper of the Year" by the journal *Lancet*.

A Krafft:

- Panel Leader, Association for Molecular Pathology Annual Meeting, Management Challenge: Attraction, Training and Retention of Molecular Technologists, Scottsdale, Ariz.
- Young Investigator Award Judge, Association for Molecular Pathology Annual Meeting, Scottsdale, Ariz.
- AFDIL Pre-CAP Laboratory Inspector.
- Initial Biology Reader, Siemens Westinghouse Competition: Math, Science, Technology, Princeton, NJ.
- Microbiology Chair, Northern Virginia Science and Engineering Regional Fair, Arlington, Va.
- Team Leader, Yorktown High School Science Fair, Arlington, Va.

S McCall:

"A Designator," Army Medical Department's Highest Technical Rating, 2005.

Manuscripts Reviewed

Department staff reviewed articles for the following professional journals in 2005:

1. *American Journal of Pathology*: 4
2. *Cancer*: 4
3. *Cancer Research*: 4
4. *International Journal of Cancer*: 1
5. *Biotechniques*: 1
6. *Journal of Virology*: 5
7. *New England Journal of Medicine*: 1
8. *Oncogene*: 1

- 9. *Science*: 3
- 10. *Nature*: 3
- 11. *Virology*: 3
- 12. *Clinical Chemistry*: 1
- 13. *Journal of Molecular Diagnostics*: 4
- 14. *Molecular Diagnosis*: 1



Glenn D. Sandberg, LTC, MC, USA
Chair
Date of Appointment — October 2001

DEPARTMENT OF SCIENTIFIC LABORATORIES

STAFF

Professional/Scientific

Glenn D. Sandberg, LTC, MC, USA, Chair
Wei-Sing Chu, MD, PhD, Chief, Immunohistochemistry

Administrative/Technical

Arnicia E. Downing, Chief, Scientific Labs
Efrain Perez-Rosario, Chief, Electron Microscopy Lab

ORGANIZATION

The Department of Scientific Laboratories comprises 14 divisions:

- Acquisitions Lab
- Grossing Lab
- Microtomy Lab
- Special Stains Lab
- General Immunohistochemistry Lab
- Special Immunohistochemistry Lab
- Hematopathology Lab
- Genitourinary Lab
- Neuromuscular Lab
- Controls Lab
- Electron Microscopy Lab
- Tri-Service School of Histotechnology
- Research and Development Lab
- Glassware

IMPACT

The Department of Scientific Laboratories provides technical, consultative, and scientific services to the pathology departments of the AFIP, supporting the Institute's mission of consultation, education, and research. Services include basic and advanced histology techniques, scanning and transmission electron microscopy, and immunohistochemical tissue analyses. The department provides basic and advanced training in histology techniques to military and civilian personnel through the Tri-Service School of Histotechnology and the Annual Histopathology Techniques Seminar. All efforts are designed to ensure the highest medical and investigative science.



Arnica E. Downing
Laboratory Chief
Date of Appointment — 23 September 1991

HISTOPATHOLOGY LABORATORIES

STAFF

Rosanna Bailey, DAC, Histopathology Technician
 George Barbour, HM1, Histopathology Technician
 Betty Beal, VAMC, Histopathology Technician
 Mildred Benton, ARP, Histopathology Technician
 Freda Blake, VA, Histopathology Technician
 (D) Todd Brown, SGT, USA, Histopathology Technician
 Robert Calvo, HM2, Histopathology Technician
 Mel Castro, DAC, Histopathology Technician
 (D) Timothy Davidson, USAF, Histopathology Technician
 Mary Dyson, ARP, Histopathology Technician
 (D) Monte Grace, HM2, Histopathology Technician
 Zahaitu Harvey, ARP, Histopathology Technician
 Francine Hincerick, DAC, Histopathology Technician
 Shirley V. Horton, ARP, Histopathology Technician
 Brian Johnson, SSgt, USAF, Histopathology Technician
 Ingrid Jones, DAC, Histopathology Technician
 Clementine Kelson, ARP, Histopathology Technician
 Wanda King, ARP, Histopathology Technician
 Langston Lim, ARP, Histopathology Technician
 Charles Lattany, SSgt, USAF, Superintendent, Tri-Service School
 Wilbur Maravilla, ARP, Histopathology Technician
 Alejandro Morales, HM1, Histopathology Technician
 Debra A. McElroy, DAC, Quality Assurance Supervisor
 Warren McNeil, DAC, Histopathology Technician
 Myra Miller, DAC, Histopathology Technician
 Barbara Norfleet, DAC, Histopathology Technician
 Oliver Onyebuchykwu, ARP, Histopathology Technician
 Verna Pinkett, DAC, Histopathology Technician
 Michael Proctor, DAC, Histopathology Technician
 Juanita Rogers, ARP, Histopathology Technician
 Joseph Rosamont, VA, Histopathology Technician
 Blair Slaughter, ARP, Histopathology Technician
 Blondell Smith, DAC, Histopathology Technician
 (D) Paul Smith, ARP, Histopathology Technician
 (D) Michael Taylor, USAF, Histopathology Technician
 Stacey Tamer, ARP, Histopathology Technician
 Michael Vick, HM2, USN, Histopathology Technician
 Julia Wilson, DAC, Program Director
 Robert Wilson, DAC, Histopathology Technician
 Raheema Al-Baqi, VA, Acquisitions Supervisor
 (A) Nawere Haque, ARP, Data Entry Technician
 (A) Rick Figueroa, SSgt, USAF, Histopathology Technician
 (A) Quentin Nick, SPC, USA, Histopathology Technician
 (A) Linda Savoff, SSgt, USAF, Histopathology Technician
 (A) Rafael Tirado, SRA, USAF, Histopathology Technician
 (A) Richard Stapp, PVT, USA, Histopathology Technician
 (A) Kelli Davidson, ARP, Histopathology Technician

- (A) Tameka Newford, HM2, USN, Histopathology Technician
- (A) Sylvia Cordero, SrA, USAF, Histopathology Technician
- (A) John Stokes, SGT, USA, Histopathology Technician
- Artie Walker, SPC, USA, Histopathology Technician
- Min-Qi Wei, ARP, Histopathology Technician
- Lin Xi, ARP, Histopathology Technician
- Frank Avallone, DAC, Histopathology Technician
- Rex Hartzoge, DAC, Histopathology Technician
- Ives Valenzuela, DAC, Histopathology Technician
- Muhammed Waheed, ARP, Histopathology Technician
- Elizabeth Harvell, ARP, Glassware Technician

IMPACT

The Histopathology Laboratories provide histotechnical support and expertise to the pathology departments at the AFIP, and training in histotechniques to visiting professionals and technologists. To insure that the laboratories are capable of fully meeting their mission, every aspect of the operation of the laboratories is inspected by representatives from the College of American Pathologists (CAP).

In 2005, 21,558 cases consisting of 30,064 work orders were completed, requiring the following procedures and special stains:

Blocks cut	98,826
Slides cut	241,456
H&E stains:	68,670
Special stains:	28,151
Unstained:	102,275
Immunostained:	62,360
Orthopedic plastics	3
Decals.....	244
X-rays.....	45

Deployments: All military histotechnologists routinely rotated to the Dover Mortuary in support of the OAFME’s operational missions.

EDUCATION

Courses

1. Histopathology Seminar: This course is a review for histotechnologists planning to take the ASCP certification examination. Topics covered include techniques for proper preparation of renal biopsies and troubleshooting procedures in special stains, immunohistochemistry, tissue processing, and microtomy.
2. Laboratory staff presented 60 didactic hours to participants in the Tri-Service School of Histotechnology course.
3. Several staff members lectured at state and regional professional meetings.
4. Division staff made presentations at Weekly Professional Staff Conferences.

Training

Departmental staff provided visiting pathologists and technologists with over 1,200 hours of training in a variety of laboratory techniques, including eye histotechnology, special staining methods for infectious organisms, and Warthin-Starry procedures for melanin and bacteria. Orientation and advanced training were provided to 6 civilians and 25 incoming military personnel.

RESEARCH

Projects

Our laboratories provided technical support for all approved research projects. Cost estimates are now prepared based on CAP’s workload unit costs, which include technician time, materials, and equipment.

TRI-SERVICE SCHOOL OF HISTOTECHNOLOGY



Charles Lattany III, SSgt, USAF
Course Superintendent
Date of Appointment – September 1996



Julia Wilson, BS, HT (ASCP)
Program Director
Date of Appointment – March 1997

STAFF

Julia Wilson, BS, HT (ASCP)
Charles A. Lattany III, TSgt, USAF
George Barbour, HM1, USN, LPOIC of Student Training
Ingrid Jones, BS, BA, Instructor

IMPACT

- The Tri-Service School of Histotechnology is the only military histopathology training program. It provides formal training to military and civilian students in the technical operations of anatomic pathology, as applied to the histopathology laboratory and postmortem procedures.
- The histology school convened 2 classes in 2005, both consisting of 180 training days. Training includes instruction in the theory and application of histotechnology and practical training in the fixation, processing, embedding, microtomy and staining of tissue specimens, microscopic tissue identification and assistance in postmortem examination. Practical training includes clinical rotations in a variety of AFIP and affiliated military laboratories.
- The course is administered by the Department of Scientific Laboratories and is coordinated through the School of Health Care Science at Sheppard AFB, Texas and the Naval School of Health Sciences at the National Naval Medical Center, Bethesda. Affiliates also include the departments of Anatomic Pathology at WRAMC, NNMC, and Malcolm Grow Medical Center, Andrews AFB.
- The Tri-Service School of Histotechnology is accredited by the National Accrediting Agency of Clinical Laboratory Sciences (NAACLS), which is sponsored by the American Society of Clinical Pathology (ASCP) and the American Society for Clinical Laboratory Science. The National Society of Histotechnology is a participant of NAACLS.
- Graduates of the Tri-Service School of Histotechnology are awarded certificates and AFSC 4T032 (Air Force) and NEC 8503 (Navy) classification codes. Army members are also trained, but there is currently no histotechnician career field classification. Graduates are eligible to apply to take the ASCP, HT certification examination.

EDUCATION

1. Staff gave 3 presentations at educational venues in 2005.
2. Ms. Wilson served as Course Director of the Annual Histopathology Seminar, March - April, 2005, Bethesda, Md.
3. TSgt Lattany gave a video teleconference, "Histology Troubleshooting," AFIP Monthly Telemedicine Conference, March 2005.

Students Trained in 2005

Navy.....	3
Air Force	12
Civilian.....	1

Workload Completed

Blocks	756
H&Es	851
Specials	72

Unstained	267
Immuno	78
Total slides	1,268
Controls	1,230

ELECTRON MICROSCOPY LABORATORY

Efrain Perez-Rosario
Chief
Date of Appointment – August 1991

IMPACT

We provide technical and scientific services to the departments of the AFIP, supporting the professional staff in consultation, research, and education using advanced technology in transmission electron microscopy (TEM).

CONSULTATION

We have 2 high-resolution (ZEISS-10A) electron microscopes, one of which is equipped with a state-of-the-art digital photography system.

Transmission Electron Microscopy

Work orders completed	411
Blocks cut	1,993
Grids cut	1,993
Pre and post slides cut	2,574
Prints made	6,586
CD taken	479
Total microscope usage	594.28 hrs

IMMUNOHISTOCHEMISTRY LABORATORY

Wei-Sing Chu, MD, PhD
Chief
Date of Appointment – September 2003

STAFF

Administrative/Technical

Rosanna Bailey, DAC, Supervisor, General Immunohistochemistry
Wanda King, ARP, Supervisor, Special Immunohistochemistry
Min Qi, ARP, Supervisor, Hematopathology
Frank Avallone, DAC, Histopathology Technician

IMPACT

The Immunopathology Laboratory provides state-of-the-art immunohistochemical staining in support of diagnostic and prognostic markers in case consultation and Institute research. Our secondary mission is to develop advanced tissue diagnostic techniques.

Workload Completed

General Immunohistochemistry

Cases	5,920
Work orders	7,095
Slides stained	21,081

Special Immunohistochemistry

Cases	2,100
Work orders	2,328

Hematopathology Laboratory

Cases	4,696
Work orders	5,481
Slides stained	32,354

Genitourinary Laboratory

Cases	2,279
Work orders	3,886

RESEARCH***Journal Articles***

1. Chu WS, Liang Q, Tang Y, King R, Wong K, Gong M, Wei M, Liu J, Feng SH, Lo SC, Andriko JA, Orr M. Ultrasound-accelerated tissue fixation/processing achieves superior morphology and macromolecule integrity with storage stability. *J Histochem Cytochem.* 2005 Nov 28; [Epub ahead of print].
2. Chu WS, Liang Q, Liu J, Wei MQ, Winters M, Liotta L, Sandberg G, Gong M. A nondestructive molecule extraction method allowing morphological and molecular analyses using a single tissue section. *Lab Invest.* 2005;85:1416-28.
3. Chu WS, Furusato B, Wong K, Sesterhenn IA, Mostofi FK, Wei MQ, Zhu Z, Abbondanzo SL, Liang Q. Ultrasound-accelerated formalin fixation of tissue improves morphology, antigen and mRNA preservation. *Mod Pathol.* 2005;18:850-63.

NEUROMUSCULAR LABORATORY

Valenzuela Ives

Supervisor

Date of Appointment – January 2003

Workload Completed

Cases	419
Work orders	780
Frozen specimens	385
Formalin-fixed specimens	395
Slides stained	5,805
Glutaraldehyde-fixed specimens	417
EM blocks embedded	3,041
EM blocks cut	827

ACQUISITIONS LABORATORY

Raheema Al-Baqi

Supervisor

Date of Appointment – January 2003

Workload Completed

Work orders	28,923
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GROSSING LABORATORY

Warren McNeil

Supervisor

Date of Appointment – January 2003

Workload Completed

Wet tissue specimens processed 8,006/36,010

GLASSWARE

Elizabeth Harvell

Supervisor

Date of Appointment – January 2003



Angela D. Levy, LTC (P), MC, USA
Chair
Date of Appointment – 2 May 2005

DEPARTMENT OF RADIOLOGIC PATHOLOGY

ORGANIZATION

The department is organized into 7 sections and the Office of the Chair:

- Gastrointestinal Radiology
- Genitourinary Radiology
- Musculoskeletal Radiology
- Neuroradiology
- Pediatric Radiology
- Pulmonary and Mediastinal Radiology
- Forensic Radiology

STAFF

Medical

- (D) Lynn K. Arcara, MD, Junior Scientist, Musculoskeletal Radiology, ARP
- (D) Geoffrey A. Agrons, MD, Chief, Pediatric Radiology, Contract Employee
- (A) Ellen M. Chung, LTC, MC, USA, Chief, Pediatric Radiology
 - Aletta A. Frazier, MD, Physician Medical Illustrator, ARP
 - Jeffrey R. Galvin, MD, Chief, Pulmonary and Mediastinal Radiology, ARP
- (A) Michael S. Gibson, LCDR, MC, USN, Musculoskeletal Radiology, MOU-National Capital Consortium
 - Leonard M. Glassman, MD, FACR, Chief, Mammography, MOU-Washington Radiology Associates, PC
- (A) Brian T. Jennings, MD, Junior Scientist, Musculoskeletal Radiology, ARP
- (A) Howard T. Harcke, COL, MC, USA, Chief, Forensic Radiology
- (D) Kelly K. Koeller, CAPT, MC, USN, FACR, Chair and Chief, Neuroradiology
 - Angela D. Levy, LTC, MC, USA, Chair and Chief, Gastrointestinal Radiology
- (A) Maria Manning, MD, Junior Scientist, Genitourinary Radiology, ARP, part-time
 - Mark D. Murphey, MD, Chief, Musculoskeletal Radiology, ARP
- (A,D) Arthur T. Rosenfield, MD, FACR, Distinguished Scientist, ARP
 - Paula J. Woodward, MD, Chief, Genitourinary Radiology, ARP

Administrative

- Adahlia M. Glover, Case Manager, ARP
- Monte Grace, HM2 (FMF), USN, NCOIC, 6-Week Course
- Donald F. Hatley, HM1 (FMF), USN, NCOIC, Administrative Support
- Sharon Holquin, Archivist, ARP
- Jessica Holquin, Digitization Specialist, ARP
- Ingrid Jenkins, Administrative Assistant, ARP
- Kathy M. Rahimly, Case Manager, ARP, part-time
- Anika Torruella, Editorial Assistant, ARP
- Alethia B. West, Case Management Supervisor, ARP
- Carl D. Williams, 6-Week Course Coordinator and Categorical Course Coordinator, ARP
- Ben Yohannes, Systems Manager, Contract Employee

IMPACT

In 2005, the section of Forensic Radiology was formally added to the department. The section is headed by a senior military radiologist who has extensive military operational experience, multiple deployments in combat theaters of operations, and forensic radiology experience. Military members of the department led the radiologic aspects of the Virtual Autopsy Program in conjunction with the OAFME, which included installation and integration of multidetector computed tomography (MDCT) into the forensic autopsy process at the Charles C. Carson Center of Mortuary Affairs at Dover Air Force Base, Delaware. The Virtual Autopsy Program is the world's first use of MDCT in routine forensic evaluation and the world's first CT scanner in a mortuary. In 2004, Virtual Autopsy Phase I was funded as a research initiative at \$3.9M and quickly became integrated into the routine forensic operations at the Dover mortuary. Virtual Autopsy Phase I resulted in scientific presentations and publications defining the imaging features and utility of MDCT in high-velocity gunshot wounds and comparison of MDCT to digital radiography in forensic evaluation of gunshot wounds. More than 1,000 human remains were scanned with MDCT prior to autopsy in 2005. Consequently, military staff made significant contributions to the processing of human remains from Operation Iraqi Freedom and Operation Enduring Freedom, as well as major inroads into defining and reshaping the field of forensic radiology.

Our entire staff made significant contributions to the education of military and civilian radiology residents and radiologists worldwide, utilizing radiologic-pathologic correlation, and to a wide range of military activities affiliated with the AFIP. The department's world-renowned educational program, the 6-week Radiologic Pathology Course, was held 5 times in 2005 with 1,203 radiology residents in attendance. Diagnostic radiology residents from all 190 United States residency programs participated in this didactic educational program. With no substantial federal assistance, this financially independent course is the sole source for all of the department's non-military salaries, equipment, and expenditures, and generated revenues of nearly \$2.5M. The course also provided over 1,200 new cases to the over 40,000 cases held in the department's archives of radiologic-pathologic correlation. This valuable and unique repository is the basis for all of the research conducted by the department's faculty, leading to 20 peer-reviewed articles and more than 600 lectures presented in numerous radiological science symposia. The fourth edition of the course's soft-cover syllabus was released for public sale in July 2005 and represented a major expansion of this text, with 3 volumes, captioned figures, references, and an index. This book has been enthusiastically received and has vigorous hardcover sales. The department's mission is enhanced by the *RadPath Luminary*, a quarterly electronic newsletter released to more than 18,000 radiologists and physicians worldwide. The online educational portal Ask RadPath was updated to Radiologic Pathology at AskAFIP™ in 2005. The portal combines the case material, the 2005-2006 Radiologic Pathology syllabus, and scientific articles by departmental staff into an interactive platform that allows efficient and timely review of a wide variety of topics, as well as self-assessment for the user, and is currently subscribed by 2,751 members.

CONSULTATION

The department conducts only intramural radiologic consultation. Radiologic pathology provided 61 man-days of onsite consultation for autopsy at the Dover mortuary in direct support of Operation Iraqi Freedom and Operation Enduring Freedom. Consultation was provided on 1,221 class cases contributed by residents attending the Radiologic Pathology Correlation Courses, and 263 cases submitted by various AFIP pathology departments.

EDUCATION

Courses

1. AFIP Radiologic Pathology Courses

- 6-week Radiologic Pathology Course (5 courses in 2005): These were attended by 1,203 radiology residents (51 federal, 1,152 nonfederal). Approximately 137 man-days of training were provided. The course remains subscribed nearly 2 years in advance and is attended by virtually all civilian and military residents from every U.S. diagnostic radiology residency program, and is offered to radiologists who have completed their training. Two hundred residents from other countries also attend. See Presentations for a complete list of lecture titles.
- 1-week categorical courses (held within the 6-week Radiologic Pathology Courses): A total of 3 courses (Abdominal Imaging, Neuroradiology, and Musculoskeletal Radiology) offered 103

CME credit hours and were attended by 46 health professionals, who earned a total of 1,558 CME credit hours.

Course _____	Enrollment _____	CME credit hours
Abdominal Imaging	12	420
Neuroradiology	20	620
Musculoskeletal Radiology	14	518

- Weekend courses (1 course in 2005): 97 health professionals attended for a total of 194 attendee-days and 15.5 hours of CME credit per attendee.

Course _____	Enrollment _____	CME credit hours
20 th Annual Washington Neuroradiology Course	97	1,503.5

2. AFIP Courses in Collaboration with Foreign Radiological Societies

The department provided the curriculum and faculty for 4 international short courses held in Spain, Austria, Portugal, and the Netherlands and sponsored by the radiological societies in these locales, in association with the AFIP and the ARP. Members of the department were also featured in specific sections within the course curricula of several major international radiological symposia in Brazil, Japan, France, Germany, and Argentina. These courses ensured dissemination of the principles of radiologic-pathologic correlation to radiologists and physicians who do not traditionally participate in the department's Radiologic Pathology Courses. The courses were extremely well received and we expect that they will continue on an annual basis. See Presentations for a listing of lecture titles.

3. Participation in Courses Held by Other AFIP Departments

Our staff provided lectures in courses hosted by ENT Pathology, Neuropathology, Genitourinary Pathology, and the AFIP VTC Grand Rounds Series.

Trainees

Junior Scientists begin a post-residency year in graduate medical education in selected subspecialty areas of radiology. The department provided this training to 3 radiologists in the Musculoskeletal Radiology section in 2005. In addition, research assistants may collaborate on specific projects with the department's medical staff. Dr. Ana Maria Crespo Rodriguez, a fourth-year radiology resident sponsored by Fundación XIII Congreso Internacional de Radiología and Sociedad Espanola de Radiología (SERAM) in Spain, collaborated with Dr. Mark Murphey, chief of Musculoskeletal Radiology, on selected projects.

Faculty Appointments

1. Clinical Assistant Professor of Radiology, University of Pennsylvania School of Medicine, Philadelphia, GA Agrons.
2. Department of Radiology, WRAMC, EM Chung.
3. Clinical Associate Professor, Department of Radiology, University of Maryland Medical System, AA Frazier.
4. Clinical Professor, Department of Radiology, University of Maryland Medical System, JR Galvin.
5. Clinical Professor, Department of Radiology, George Washington University School of Medicine, LM Glassman.
6. Clinical Professor, Department of Radiology, Georgetown University School of Medicine, LM Glassman.
7. Professor of Radiology and Pediatrics, Jefferson Medical College, Philadelphia, Penn, HT Harcke.
8. Clinical Professor of Radiology and Nuclear Medicine, USUHS, HT Harcke.
9. Associate Professor of Radiology and Nuclear Medicine, USUHS, KK Koeller.
10. Senior Associate Consultant, Department of Radiology, Mayo Clinic, Rochester, Minn, KK Koeller.
11. Department of Radiology, WRAMC, AD Levy.
12. Associate Professor of Radiology and Nuclear Medicine, USUHS, AD Levy.
13. Associate Professor, Radiology and Nuclear Medicine, USUHS, MD Murphey.
14. Clinical Professor, Department of Radiology, University of Maryland School of Medicine, MD Murphey.
15. Department of Radiology, WRAMC, MD Murphey.

16. Professor of Diagnostic Radiology and Surgery, Yale University School of Medicine, New Haven, Conn, AT Rosenfield.
17. Clinical Associate Professor of Radiology, University of Maryland School of Medicine, PJ Woodward.
18. Adjunct Professor of Radiology, University of Utah School of Medicine, PJ Woodward.
19. Adjunct Assistant Professor of Obstetrics and Gynecology, University of Utah School of Medicine, PJ Woodward.

Presentations

Department staff gave more than 600 presentations in 2005, 455 within the department's 6-week radiologic-pathologic correlation course and 18 in support of other Institute courses. Faculty members participated as visiting professors for 19 different academic institutions and delivered 59 presentations in other venues.

AFIP Radiologic Pathology 6-Week Course

GA Agrons

- Acute Gastrointestinal Disorders in Neonates
- Acute Gastrointestinal Disorders in Infants and Children
- Adrenal Tumors of Childhood
- Congenital Thoracic Malformations
- Lung Disease in Neonates: Radiologic-Pathologic Correlation
- Pediatric Cystic Renal Diseases
- Renal Tumors of Infancy and Early Childhood

EM Chung

- Childhood Urinary Tract Infection
- Diseases Affecting the Pediatric Airway
- Radiologic Aspects of Cystic Fibrosis
- Vascular Rings and Slings
- Pediatric Seminar: Pulmonary Infections

AA Frazier

- Pulmonary Metastases
- Pulmonary Hypertension

JR Galvin

- Airways Disease: The Movement from Anatomic to Physiologic Assessment
- Angiitis and Granulomatosis
- An Approach to Diffuse Lung Disease: Sarcoidosis
- Bronchogenic Carcinoma: Radiologic-Pathologic Correlation
- Diagnosis of Pulmonary Embolism
- Fungal Disease in the Thorax: Opportunistic and Primary Pathogens
- Idiopathic Interstitial Pneumonias
- Inhalational Lung Disease (Asbestosis and Silicosis)
- Pulmonary Complications of Organ Transplantation
- Pulmonary Lymphoid Disorders
- Tuberculosis
- Seminars in Chest Radiology (2)

LM Glassman

- Breast Abnormalities in Young Women
- Breast Pathology: What the Radiologist Needs to Know
- Classic Breast Lesions
- Ductal Carcinoma In Situ (DCIS)

KK Koeller

- Cerebral Intraventricular Neoplasms
- Congenital CNS Anomalies
- Imaging of Demyelinating Diseases
- Imaging of the Orbit I: Globe and Conal Lesions
- Imaging of the Orbit II: Intraconal and Extraconal Lesions
- Imaging of the Suprahyoid Neck

- Imaging of the Infrahyoid Neck
- Imaging of the Temporal Bone I: Anatomy and Congenital Lesions
- Imaging of the Temporal Bone II: Infection and Neoplasms
- Imaging of CNS Infections: Meningitis, Abscess, and Beyond
- Lymphoma and Uncommon Neuroepithelial Neoplasms
- Seminars in Neuroradiology (4)

AD Levy

- Abdominal Non-Hodgkin Lymphoma
- Benign Biliary Disease
- Benign Hepatic Neoplasms
- Colorectal Carcinoma
- Chronic Liver Disease
- Gallbladder and Biliary Neoplasms
- Gastric Malignancies
- Hepatic Infections
- Inflammatory Diseases of the Colon
- Malignant Hepatic Neoplasms
- Mesenteric Masses and Cysts
- Pancreatic Neoplasms
- Small Intestinal Neoplasms
- Seminars in Gastrointestinal Radiology (6)

MD Murphey

- Alphabet Soup: Cystic Lesions of Bone
- Cartilaginous Lesions of Bone I
- Cartilaginous Lesions of Bone II
- Fibrous Lesions of the Musculoskeletal System I
- Fibrous Lesions of the Musculoskeletal System II
- Imaging of Cervical Spine Trauma
- Juxta-articular Musculoskeletal Masses I
- Juxta-articular Musculoskeletal Masses II
- Musculoskeletal Angiomatous Lesions
- Musculoskeletal Infections I
- Musculoskeletal Infections II
- Musculoskeletal Manifestations of Chronic Renal Insufficiency
- Musculoskeletal Neoplasm: Fundamental Concepts I
- Musculoskeletal Neoplasm: Fundamental Concepts II
- Osseous Lesions of Bone I
- Osseous Lesions of Bone II
- Paget Disease
- Radiologic Assessment of Joint Replacement
- Seminars in Musculoskeletal Radiology (5)

PJ Woodward

- Fetal CNS Malformations
- Fetal Anomalies I
- Fetal Anomalies II
- First Trimester Ultrasound
- Radiologic Evaluation of the Scrotum I
- Radiologic Evaluation of the Scrotum II
- Renal Neoplasms: Approach to Benign Renal Masses
- Renal Neoplasms: Approach to Malignant Renal Masses
- Retroperitoneum
- Urinary Tract Trauma
- Uterine Disorder I
- Uterine Disorder II
- Seminars in Genitourinary Radiology (3)

Department of Radiologic Pathology Courses

February 2005

Bethesda, Md, 20th Annual Washington Neuroradiology Review Course

- "Spinal cord neoplasms and their mimics," KK Koeller.
- "Demyelinating diseases," KK Koeller.
- "Unknown case review," KK Koeller.
- "Cerebral intraventricular neoplasms," KK Koeller.

March 2005

Utrecht, Netherlands, The AFIP in Holland

- "CT of gastric malignancies," AD Levy.
- "Benign liver neoplasms," AD Levy.
- "Breast abnormalities in young women," LM Glassman.
- "Uncommon signs of breast cancer," LM Glassman.
- "Ductal carcinoma in situ (DCIS)," LM Glassman.
- "Pancreatic neoplasms," AD Levy.
- "Imaging of diffuse liver disease," AD Levy.
- "Unknown case conference," AD Levy.
- "Unknown case conference," LM Glassman.

June 2005

Madrid, Spain, Fundación Espanola de Radiología-AFIP, XVI Curso Internacional de Correlación Radio-Patológica

- "Breast lesions in young women," LM Glassman.
- "Uncommon signs of breast cancer," LM Glassman.
- "Breast calcifications benign and malignant," LM Glassman.
- "DCIS," LM Glassman.
- "Imaging of breast masses," LM Glassman.
- "Classic breast lesions," LM Glassman.
- "Noncontrast CT in flank pain," AT Rosenfield.
- "Imaging in renal infection," AT Rosenfield.
- "Renal masses: radiologic pathologic correlation," AT Rosenfield.
- "Scrotal imaging," AT Rosenfield.
- "The altered nephrogram," AT Rosenfield.
- "Imaging of the retroperitoneum," AT Rosenfield.

Porto, Portugal, Sociedade Portuguesa de Radiologia e Medicina Nuclear (SPRMN)-AFIP X Curso de Correlação Anátomo Radiológica

- "Breast lesions in young women," LM Glassman.
- "Uncommon signs of breast cancer," LM Glassman.
- "Breast calcifications benign and malignant," LM Glassman.
- "DCIS," LM Glassman.
- "Imaging of breast masses," LM Glassman.
- "Noncontrast CT in flank pain," AT Rosenfield.
- "Imaging in renal infection," AT Rosenfield.
- "Renal masses: radiologic pathologic correlation," AT Rosenfield.
- "Scrotal imaging," AT Rosenfield.
- "The altered nephrogram," AT Rosenfield.

Vienna, Austria, Österreichische Röntgengesellschaft-AFIP, 12th Radiologisches Fortbildungsseminar

- "Breast lesions in young women," LM Glassman.
- "Uncommon signs of breast cancer," LM Glassman.
- "Breast calcifications benign and malignant," LM Glassman.
- "DCIS," LM Glassman.
- "Imaging of breast masses," LM Glassman.
- "Classic breast lesions," LM Glassman.
- "Noncontrast CT in flank pain," AT Rosenfield.
- "Imaging in renal infection," AT Rosenfield.
- "Renal masses: radiologic pathologic correlation," AT Rosenfield.
- "Scrotal imaging," AT Rosenfield.

"The altered nephrogram," AT Rosenfield.
 "Imaging of the retroperitoneum," AT Rosenfield.

Other AFIP Pathology Departments Courses

February 2005

Washington, DC, WRAMC, 43rd Annual Basic Science Course in Otolaryngology Head and Neck Surgery

"Imaging of the suprahyoid neck," KK Koeller.
 "Imaging of the infrahyoid neck," KK Koeller.
 "Congenital cystic neck masses," KK Koeller.
 "Temporal bone: anatomy and congenital lesions," KK Koeller.
 "Temporal bone: infections and neoplasms," KK Koeller.

July 2005

Rockville, Md, 39th Annual Urological Pathology Course

"Radiologic techniques," PJ Woodward.
 "Approach to renal masses," PJ Woodward.
 "Retroperitoneum," PJ Woodward.
 "Scrotum," PJ Woodward.
 "Pediatric GU abnormalities," PJ Woodward.
 "Urothelium," PJ Woodward.
 "Radiology case review," PJ Woodward.

AFIP Grand Rounds Videoteleconferences

March 2005: "Imaging of the suprahyoid neck: place the space," KK Koeller.
 April 2005: "Idiopathic interstitial pneumonias," JR Galvin.
 June 2005: "Mesenchymal neoplasms of the gastrointestinal tract," AD Levy.
 June 2005: "GU trauma," PJ Woodward.
 July 2005: "Retroperitoneum," PJ Woodward.
 November 2005: "Benign fibrous lesions of the mesentery," AD Levy.

Non-AFIP Courses/Presentations

February 2005

Bagram, Afghanistan, US Army Hospital, Operation Enduring Freedom Medical Education Series

"Radiology in austere environments: evolution in combat zones," HT Harcke.

April 2005

Washington, DC, International Institute for Continuing Medical Education, Inc. MSK and Neuroradiological Imaging: A Practical Update

"Cervical spine trauma," MD Murphey.
 "MR imaging of muscle abnormalities," MD Murphey.

Davos, Switzerland, Musculoskeletal Diseases: Diagnostic Imaging and International Techniques, IDKD 2005

"Soft-tissue tumors and tumor-like masses: a systematic approach to diagnosis," MD Murphey.

Sao Paulo, Brazil, 34th Jornada Paulista de Radiologia

"Neonatal GI obstruction," EM Chung.
 "Noncontrast CT in flank pain," AT Rosenfield.
 "The nephrogram," AT Rosenfield.
 "Imaging of renal masses," AT Rosenfield.
 "Unknown cases," AT Rosenfield.
 "Pediatric chest," EM Chung.
 "Pediatric abdominal emergencies," EM Chung.
 "Pediatric airway," EM Chung.

May 2005

New Orleans, La, American Roentgen Ray Society 105th Annual Meeting

"Women's imaging: contemporary imaging of the ovaries, uterus and pelvic floor," PJ Woodward.

"Pulmonary hypertension," AA Frazier.
"Musculoskeletal MRI: muscle imaging," MD Murphey.
"Lung disease in neonates," GA Agrons.

Ottawa, Ontario, Pediatric Orthopedic Society of North America

"Developmental dysplasia of the hip imaging: historical and technical," HT Harcke.
"Ultrasound methods and applications for the child with DDH," HT Harcke.
"Developmental dysplasia of the hip," HT Harcke.

Philadelphia, Penn, Thomas Jefferson University Hospital

"Imaging of soft tissue tumors: a systematic approach," MD Murphey.

Miami Beach, Fla, International Society for Magnetic Resonance in Medicine, 13th Scientific Meeting and Exhibition

"Imaging of soft tissue tumors: how to stay out of trouble," MD Murphey.

August 2005

Perth, Australia, Perth Gut Club

"Gastric malignancies," AD Levy.

September 2005

Ft Myers, Fla, Radiology Regional Center

"Ultrasound scanning of the pediatric hip. lectures and hands-on practicum," HT Harcke.

October 2005

Berlin, Germany, 6th Röntgen-Virchow Symposium

"Hepatic neoplasms," AD Levy.
"Pancreatic neoplasms," AD Levy.
"Biliary neoplasms," AD Levy.
"Mesenteric masses and cysts," AD Levy.
"Unknown cases," AD Levy.
"Breast pathology for the radiologist," LM Glassman.
"Benign and malignant classic breast lesions," LM Glassman.
"Uncommon signs of breast cancer," LM Glassman.
"Breast lesions in women 35 and younger," LM Glassman.
"Unknown cases," LM Glassman.

Washington, DC, DC Metropolitan Radiological Society

"Breast abnormalities in young women," LM Glassman.

Paris, France, Societe Francaise de Radiologie

"Urothelial lesions," PJ Woodward.
"Endometriosis," PJ Woodward.
"Comprehensive review of fetal tumors," PJ Woodward.

Taipei, Taiwan, Radiological Society of the Republic of China, Categorical Course of Radiologic-Pathologic Correlation in Thoracic Imaging

"Unknowns," JR Galvin.
"Lymphoid lesions," JR Galvin.
"The idiopathic interstitial pneumonias," JR Galvin.

Napa, Calif, Society of Chairmen of Academic Radiology Departments (SCARD) Fall Meeting

"Training innovation updates," MD Murphey.

4th Annual Orthopedic Pathology Review

"Identification of benign and malignant bone and soft tissue lesions," MD Murphey.
"Principles of musculoskeletal radiology," MD Murphey.
"Benign and malignant bone tumors," MD Murphey.
"Round cell and soft tissue tumors," MD Murphey.

Wilmington, Del, DuPont Hospital for Children

"Musculoskeletal ultrasound: the infant hip and other applications. Lectures and practicum," HT Harcke.

Chicago, Ill, Society of Radiologists in Ultrasound

"Fetal tumors: an uncommon but important entity," PJ Woodward.

November 2005

Wilmington, Del, DuPont Hospital for Children

"Grand Rounds: radiology in austere environments," HT Harcke.

Seattle, Wash, Washington State Radiologic Society

"Benign fibrous lesions of the mesentery," AD Levy.

Louisville, Ky, Greater Louisville Radiological Society

"Neuroimaging manifestations in the immunocompromised patient," KK Koeller.

November/December 2005

Chicago, Ill, Radiological Society of North America 91st Scientific Assembly and Annual Meeting

"Emerging acute lung disease," JR Galvin.

"Endometriosis," PJ Woodward.

"Special focus session: lymphoma head to toe," AD Levy, PJ Woodward, JR Galvin, EM Chung, KK Koeller, MD Murphey.

"Esophageal neoplasms," AD Levy.

"Non-degenerative spine: spinal cord neoplasms and their mimics," KK Koeller.

"Demyelinating disease," KK Koeller.

Lake Buena Vista, Fla, National Diagnostic Imaging Symposium: World Class Radiology

"Demyelinating disease," KK Koeller.

"Neuroimaging manifestations in the immunocompromised patient," KK Koeller.

Woodbury, NY, Long Island Radiologic Society

"Musculoskeletal angiomatous lesions," MD Murphey.

Departmental Conferences

Intramural

Gastrointestinal Radiology:

2 (1 hour) per month, Gastrointestinal Pathology Conference

1 (1 hour) per month, Hepatic Pathology Conference

6 (1.5 hours) per year, Endocrine Pathology Conference

2 (1 hour) per year, Hematopathology Conference

Genitourinary Radiology:

2 (2 hours) per month, Genitourinary Pathology Conference

1 (1.5 hours) per month, Endocrine Pathology Conference

Mammography:

6 (1 hour) per year, Gynecologic and Breast Pathology Conference

Musculoskeletal Radiology:

16 (1 hour) per month, Orthopedic Pathology Conference

4 (1 hour) per month, Soft Tissue Pathology Conference

4 (1 hour) per year, Oral and Maxillofacial Pathology Conference

Neuroradiology:

3 (1 hour) per month, Neuropathology Conference

6 (1 hour) per year, Otolaryngic Pathology/Oral Maxillofacial Pathology Conference

Pediatric Radiology:

1 (1 hour) per year, Pediatric Pathology Conference

Pulmonary and Mediastinal Radiology:

2 (2 hours) per month, Pulmonary and Mediastinal Pathology Conference

6 (1 hour) per year, Cardiovascular Pathology Conference

Extramural

Gastrointestinal Radiology:

- 2 (1 hour) per month, Department of Radiology and Nuclear Medicine (MS-4 Radiology), USUHS
- 1 (1 hour) per month, Department of Gastroenterology, WRAMC
- 1 (1 hour) per year, Department of Pathology (MS-2 Pathology), USUHS
- 1 (1 hour) per year, Department of Radiology and Radiological Sciences (MS-2 Radiology), USUHS
- 1 (1 hour) per year, Department of Anatomy (MS-1 Anatomy), USUHS
- 3 (1 hour) per year, Department of Nephrology, WRAMC

Genitourinary Radiology:

- 1 (1 hour) per year, Department of Radiology and Radiological Sciences (MS-2 Radiology), USUHS

Musculoskeletal Radiology:

- 2 (1.5 hours) per month, Orthopedic Resident Conference, WRAMC
- 4 (1 hour) per month, Rheumatology Conference, WRAMC
- 1 (1 hour) per month, Rheumatology Conference, NIH
- 1 (1 hour) per month, Rheumatology Conference, Washington Hospital Center
- 1 (1 hour) per month, Radiology Resident Conference, University of Maryland Medical Center
- 4 (1 hour) per month, Orthopedic Oncology/Radiology/Pathology Conference, Sinai Medical Center, Baltimore, Md
- 10 (1 hour) per year, Sports Medicine and Arthroscopy Conference, National Naval Medical Center

Pulmonary Radiology:

- 1 (2 hours) per week, Pulmonary Medicine Conference, WRAMC

Seminars

Gastrointestinal Radiology:

- 26 (1 hour) per year, Department of Radiology, USUHS
- 4 (1 hour) per year, Department of Radiology, WRAMC
- 5 (1 hour) per year, Department of Gastroenterology, WRAMC

Genitourinary Radiology:

- 1 (1 hour) per month, Urology Fellows Conference, University of Maryland Medical Center
- 1 (1 hour) per month, Internal Medicine Fellows Conference, University of Maryland Medical Center
- 1 (1 hour) per year, Radiology Department, WRAMC
- 4 (1 hour) per month, Residents Conference, University of Maryland Medical Center
- 4 (1 hour) per month, Fellows Conference, University of Maryland Medical Center
- 20 (1 hour) per year, Residents Conference, University of Utah

Musculoskeletal Radiology:

- 12 (1 hour) per year, Radiology Department, WRAMC
- 8 (1 hour) per year, USUHS

Neuroradiology:

- 1 (1 hour) per year, WRAMC

Pediatric Radiology:

- 12 (1 hour) per year, WRAMC

Pulmonary and Mediastinal Radiology:

- 5 (1 hour) per year, University of Maryland Medical Center

Visiting Professorships

1. January 2005: Salt Lake City, Utah, University of Utah School of Medicine, "Radiology unknowns," PJ Woodward.
2. January 2005: Richmond, Va, Medical College of Virginia, "Grand Rounds: idiopathic interstitial pneumonias and pulmonary hypertension," JR Galvin.

3. February 2005: Wilmington, Del, Dupont Children's Hospital, "Noncontrast CT in flank pain," AT Rosenfield.
4. February 2005: Manhasset, NY, Northshore Hospital, "Grand Rounds: first trimester ultrasound," PJ Woodward.
5. April 2005: Philadelphia, Penn, Pennsylvania Hospital, "Grand Rounds: mesenchymal neoplasms of the GI tract: radiologic pathologic correlation," AD Levy.
6. April 2005: Ottawa, Ontario, University of Ottawa, "Grand Rounds: Mesenchymal neoplasms of the GI tract," AD Levy.
7. April 2005: Danville, Penn, Geisinger Medical Center, "Imaging of arthritis I: approach and inflammatory disease"; "Imaging of arthritis II: osteoarthritis, crystal disease and neuropathic"; "Imaging of bone tumors: a systematic approach," MD Murphey.
8. May 2005: Long Island, NY, Long Island College Hospital, "Imaging of arthritis I and II," MD Murphey.
9. May 2005: Philadelphia, Penn, Thomas Jefferson University Hospital, "Imaging of soft tissue tumors: a systematic approach," MD Murphey.
10. August 2005: Perth, Australia, Royal Perth Hospital, "Grand Rounds: colorectal carcinoma," AD Levy.
11. October 2005: Taipei, Taiwan, Taiwan University Hospital, "Pulmonary complications of organ transplantation," JR Galvin.
12. October 2005: Kingston, Ontario, Queen's University, "Grand Rounds: staging of GYN malignancies," PJ Woodward.
13. October 2005: Rochester, NY, University of Rochester, Stanley M. Rogoff Visiting Professor, "Mesenchymal neoplasms of the GI tract," AD Levy.
14. November 2005: St Louis, Mo, Mallinckrodt Institute of Radiology, Washington University School of Medicine, "Spinal cord neoplasms and their mimics," KK Koeller.
15. November 2005: Seattle, Wash, University of Washington and Harborview Hospital, "Grand Rounds: mesenchymal neoplasms of the GI tract," AD Levy.
16. November 2005: Louisville, Ky, University of Louisville, "Congenital CNS anomalies"; "Case unknown presentation," KK Koeller.
17. December 2005: Boston, Mass, Brigham and Women's Hospital, "Grand Rounds: mesenchymal neoplasms of the GI tract," AD Levy.
18. December 2005: Boston, Mass, Massachusetts General Hospital, Harvard University, "Grand Rounds: mesenchymal neoplasms of the GI tract," AD Levy.
19. December 2005: Grand Rapids, Mich, Michigan State University, "Pathway to fibrosis," JR Galvin.

RESEARCH

Journal Articles

1. Potter BK, Freedman BA, Lehman RA Jr, Shawen SB, Kuklo TR, Murphey MD. Solitary epiphyseal enchondromas. *J Bone Joint Surg Am.* 2005;87:1551-60.
2. Frazier AA, Qureshi F, Read KM, Gilkeson RC, Poston RS, White CS. Coronary artery bypass grafts: assessment with multidetector CT in the early and late postoperative settings. *RadioGraphics.* 2005;25:881-96.
3. Abbott GF, Rosado-de-Christenson ML, Frazier AA, Franks TJ, Pugatch RD, Galvin JR. Lymphangioleiomyomatosis: radiologic pathologic correlation. *RadioGraphics.* 2005;25:803-28.
4. Statler JD, Tempel CG, Harcke HT. Computed tomography of craniofacial trauma at a combat support hospital in Afghanistan. *Mil Med.* 2005;170:206-10.
5. Harcke HT. Imaging methods used for children with hip dysplasia. *Clin Orthop Rel Res.* 2005;434:71-7.
6. Grissom LE, Kecskemethy HH, Bachrach SJ, McKay C, Harcke HT. Bone densitometry in pediatric patients treated with pamidronate. *Ped Radiol.* 2005;35:511-7.
7. Waninger KN, Harcke HT. Determination of safe return to activity in athletes with infectious mononucleosis at risk for spleen rupture. *Clin J Sports Med.* 2005;15:410-6.
8. Agrons GA, Courtney SE, Stocker JT, Markowitz RI. Lung disease in premature neonates: radiologic-pathologic correlation. *RadioGraphics.* 2005;25:1047-73.
9. Koeller KK, Rushing EJ. Oligodendroglioma and its variants: radiologic-pathologic correlation. *RadioGraphics.* 2005;25:1669-88.
10. Woodward PJ, Sohaey R, Kennedy A, Koeller KK. A comprehensive review of fetal tumors

- with pathologic correlation. *RadioGraphics*. 2005;25:215-42.
11. Travis WD, Garg K, Franklin WA, Wistuba II, Sabloff B, Noguchi M, Kakinuma R, Zakowski M, Ginsberg M, Padera R, Jacobson F, Johnson BF, Hirsch F, Brambilla E, Flieder DB, Geisinger KR, Thunnissen F, Kerr K, Yankelevitz D, Franks TJ, Galvin JR, Henderson DW, Nicholson AG, Hasleton PS, Roggli V, Tsao MS, Cappuzzo F, Vazquez M. Evolving concepts in the pathology and computed tomography of lung adenocarcinoma and bronchioloalveolar carcinoma. *J Clin Oncol*. 2005;23:3279-87.
 12. Fukuoka J, Franks TJ, Colby TV, Flaherty KR, Galvin JR, Hayden DL, Gochuico BR, Kazerooni EA, Martinez F, Travis WD. Peribronchiolar metaplasia: a common histologic lesion in diffuse lung disease and a rare cause of interstitial lung disease. *Am J Surg Pathol*. 2005;29:948-54.
 13. Abbott GF, Rosado de Christenson ML, Franks TJ, Frazier AA, Pugatch R, Galvin JR. Pulmonary lymphangioleiomyomatosis. *RadioGraphics*. 2005;25:803-28.
 14. Lynch D, Travis W, Muller N, Galvin J, Hansell D, Granier P, King T. Idiopathic interstitial pneumonias: CT features. *Radiology*. 2005;236:10-21.
 15. Chang YC, Yu CJ, Chang SC, Galvin JR, Liu HM, Hsiao CH, Kuo PH, Chen KY, Franks TJ, Huang KM, Yang PC. Pulmonary sequelae in patients convalescing after severe acute respiratory syndrome: evaluation with thin-section CT. *Radiology*. 2005;236:1067-75.
 16. Levy AD, Quiles A, Miettinen M, Sobin LH. Gastrointestinal schwannomas: CT features with clinicopathologic correlation. *AJR Am J Roentgenol*. 2005;184:707-802.
 17. Thompson WM, Levy AD, Aguilera NS, Gorospe L, Abbott RM. Angiosarcoma of the spleen: imaging characteristics in 12 patients. *Radiology*. 2005;235:106-15.
 18. Levy AD, Patel N, Dow N, Abbott RM, Miettinen M, Sobin LH. Abdominal neoplasms in patients with neurofibromatosis type I: radiologic-pathologic correlation. *RadioGraphics*. 2005;25:455-80.
 19. Tatli S, Morteale KJ, Levy AD, Glickman JN, Ros PR, Banks PA, Silverman SG. CT and MRI features of pure acinar cell carcinoma of the pancreas in adults. *AJR Am J Roentgenol*. 2005;184:526-30.
 20. Koeller KK, Marilyn J, Siegel MD, Armed Forces Institute of Pathology 2004-2005. Distinguished Scientist. *Radiology*. 2005;237:14.
 21. Levy AD, Taylor LD, Abbott RM, Sobin LH. Duodenal carcinoids: radiologic analysis of 33 cases with clinicopathologic correlation. *Radiology*. 2005;237:967-72.

Abstracts

1. Arcara LK, Murphey MD, Gannon FH, Jelinek JJ, Flemming DJ, Dinuer P. Adamantinoma and osteofibrous dysplasia: radiologic differentiation. *Skeletal Radiol*. 2005;34(P):679-80.
2. Murphey MD, Agrons GA, Smith WS, Arcara LK, Fanburg-Smith J. Imaging of lipoblastoma: radiologic-pathologic correlation. *Skeletal Radiol*. 2005;34(P):678.
3. Levy AD, Abbott RM, Mallak CT, Getz JM, Harcke HT, Champion HR, Pearse L. Virtual autopsy: preliminary experience in high velocity gunshot wound victims. 91st Scientific Assembly and Annual Meeting of the Society of North America.
4. Hricak J, Gastonis C, Coakley FV, Reinhold C, Schwartz LH, Woodward PJ. CT and MR imaging of cervical cancer: ACRIN/GOG comparative study of diagnostic performance and reader variability. 91st Scientific Assembly and Annual Meeting of the Society of North America.
5. Mitchell DG, Hricak H, Snyder B, Gastonis C, Reinhold C, Amendola MA, Woodward PJ. Early invasive cervical cancer: pretreatment determination of tumor size and uterine involvement by MRI and CT in the ACRIN-6651/GOG-183 Intergroup Study. 91st Scientific Assembly and Annual Meeting of the Society of North America.
6. Kecskemethy HH, Harcke HT, Bachrach SJ. The lateral distal femur: an alternative DXA site for children with cerebral palsy. *Bone*. 2005;36:S320.
7. Harcke HT, Kecskemethy HH, Bachrach SJ. Clinical experience with pamidronate treatment in children with spastic quadriplegic cerebral palsy: a retrospective review. *Bone*. 2005;36:S414.
8. Bass CR, Folk B, Salazar R, Davis M, Donnellan L, Harris RM, Rountree MS, Gardner M, Harcke T, Rouse E, Oliver W, Sanderson E, Waclawik S, Holthe M, Hauck B. Development of a test methodology to evaluate mine protective footwear. Proceedings of the 24th Army Science Conference, Orlando, Fla, November 29-December 2, 2005.
9. Grimaldi GM, Miller TT, Harcke HT, Grissom LG. Sonography of the pediatric knee. Educational Exhibit, RSNA, Chicago, Ill, November 2005.

Book Chapter

Grissom LE, Harcke HT. Pediatric musculoskeletal ultrasound. In: *Diagnostic Ultrasound*. 3rd ed. St Louis: Elsevier; 2005:2035-59.

Books

1. Levy AD, Koeller KK, Chung EM, Galvin JR, Murphey MD, Woodward PJ, eds. *Radiologic Pathology 2005-2006*. 4th ed. Washington, DC: ARP; 2005.
2. Osborn AG, Birdwell RL, Dalinka MK, Gardiner GA, Levy AD, Maynard CD, Oestreich AE, Rosado de Christenson ML, eds. *Year Book of Diagnostic Radiology 2005*. Philadelphia: Mosby; 2005.
3. Woodward PJ, Kennedy A, Sohaey R, Byrne JLB, Oh KY, Puchalski MD. *Diagnostic Imaging: Obstetrics*. Salt Lake City, Utah: Amirsys; 2005.

Syllabuses

1. Kransdorf MJ, Murphey MD. Soft-tissue tumors and tumor-like masses. In: *A Systematic Approach to Diagnosis in Musculoskeletal Diseases: Diagnostic Imaging and International Techniques, IDKD 2005*, Davos, Switzerland, April 2-8, 2005;54-61.
2. Frazier AA. Pulmonary hypertension. In: McAdams HP, Gautham R, eds. *Categorical Course in Cardiopulmonary Imaging*. American Roentgen Ray Society Annual Meeting 2005;319-34.
3. Glassman LM. Breast abnormalities in young women. In: *Uitgave van de Nederlandse Vereniging voor Radiologie*. EduRad 2005;51:7-12.
4. Glassman LM. Uncommon signs of breast cancer. In: *Uitgave van de Nederlandse Vereniging voor Radiologie*. EduRad 2005;51:13-6.
5. Glassman LM. Ductal carcinoma in situ. In: *Uitgave van de Nederlandse Vereniging voor Radiologie*. EduRad 2005;51:17-21.
6. Levy AD. CT of gastric malignancies. In: *Uitgave van de Nederlandse Vereniging voor Radiologie*. EduRad 2005;51:22-4.
7. Levy AD. Pancreatic neoplasms. In: *Uitgave van de Nederlandse Vereniging voor Radiologie*. EduRad 2005;51:25-30.
8. Levy AD. Benign hepatic neoplasms. In: *Uitgave van de Nederlandse Vereniging voor Radiologie*. EduRad 2005;51:35-40.
9. Levy AD. CT of gastric malignancies. In: *Uitgave van de Nederlandse Vereniging voor Radiologie*. EduRad 2005;51:22-4.
10. Glassman LM. Breast abnormalities in young women. *Acta Radiologica Portuguesa*. 2005;17:19-23.
11. Glassman LM. Uncommon signs of breast cancer. *Acta Radiologica Portuguesa*. 2005;17:25-8.
12. Glassman LM. Breast calcifications: benign and malignant. *Acta Radiologica Portuguesa*. 2005;17:29-32.
13. Glassman LM. DCIS. *Acta Radiologica Portuguesa*. 2005;17:19-23.
14. Glassman LM. Evaluation of breast masses. *Acta Radiologica Portuguesa*. 2005;17:19-23.

Exhibits

1. May 2005: New Orleans, La, "The spleen: differential diagnosis with radiologic pathologic correlation" (*Silver Medal Award*), RM Abbott, AD Levy.
2. November/December 2005: Chicago, Ill, 91st Scientific Assembly and Annual Meeting of the Society of North America, "Cystic renal masses: an interactive teaching file," DS Hartman, PL Choyke, PJ Woodward.
3. November/December 2005: Chicago, Ill, 91st Scientific Assembly and Annual Meeting of the Radiological Society of North America, "Pathologic and MR imaging features of benign fibrous soft tissue tumors," PA Dinuer, CT Guilford, CJ Brixey, J Moncur, JC Fanburg-Smith, MD Murphey.
4. November/December 2005: Chicago, Ill, 91st Scientific Assembly and Annual Meeting of the Radiological Society of North America, "Imaging characteristics of superficial soft tissue masses," F Beaman, MJ Kransdorf, TR Andrews, LK Arcara, MD Murphey.

Projects**Investigative:**

1. Virtual Autopsy Phase I.
2. Virtual Autopsy with multidetector two- and three-dimensional CT scanning.
3. Gastrointestinal carcinoids: CT features with pathologic correlation.

4. Fibrous lesions of the mesentery: imaging features with pathologic correlation.
5. Lesions of the filum terminale.
6. Chordoma versus chondrosarcoma.
7. Imaging features of malignant intraductal papillary mucinous neoplasms of the pancreas.
8. Gastrointestinal stromal tumors: radiologic-pathologic correlation.
9. Imaging of mesenchymal chondrosarcomas.
10. Angiomatoid fibrous histiocytoma.
11. Radiologic-pathologic correlation in mixed epithelial and stromal tumors.
12. Radiologic-pathologic correlation in metanephric adenoma of the kidney.

Educational:

1. Neoplasms of the posterior fossa.
2. Oligodendroglioma: radiologic-pathologic correlation.
3. Pilocytic astrocytoma: radiologic-pathologic correlation.
4. Imaging of vascular neoplasms of the spleen.
5. Abdominal manifestations of neurofibromatosis.
6. Ovarian sex cord stromal tumors from the AFIP: imaging features with radiologic-pathologic correlation.
7. Fetal tumors.
8. Benign lipomatous lesions: radiologic spectrum with pathology correlation.
9. Polyposis syndromes.
10. Pancreatic neoplasms in children.
11. Bladder tumors.
12. CT and MR Teaching Atlas of the Abdomen.
13. Intravascular lymphomatosis: pathology and imaging spectrum.
14. Neuroradiologic characteristics of astroblastomas and distinction from potential mimics.

Electronic:

1. Franks TJ, Galvin JR, Nelson AM, Williams B, Owner C. AskAFIP™, multidisciplinary teaching database, <http://www.askafip.org.html>
2. Koeller KK, Levy AD. Radiologic Pathology at AskAFIP™, Web-based radiology teaching module, <http://www.radpath.org/askradpath.html>

Collaborators

Military/Federal

1. James Smirniotopoulos, MD, USUHS
2. Robert M. Abbott, LtCol, USAFR, MC, University of Maryland Medical Systems
3. Donald J. Fleming, CAPT, MC, USN, National Naval Medical Center
4. Gael Lonergan, Col, USAFR, MC, Austin, Tex
5. Mark Travis, LCDR, MC, USN, National Naval Medical Center
6. Richard Conran, COL, MC, USA, USUHS
7. J. Thomas Stocker, COL, MC, USA, USUHS

Civilian

1. American College of Radiology
2. American Osteopathic College of Radiology
3. American Roentgen Ray Society
4. Association of University Radiologists
5. Association of Program Directors in Radiology
6. Radiological Society of North America
7. Koenraad J. Morteale, MD, Brigham and Women's Hospital, Boston, Mass
8. Pablo R. Ros, MD, MPH, Brigham and Women's Hospital, Boston, Mass
9. Nandini Patel, MD, Washington Hospital Center, Washington, DC
10. Charles A. Rohrmann, Jr, MD, University of Washington, Seattle, Wash
11. Department of Radiology, University of Maryland Medical Center
12. Robert Poston, MD, University of Maryland Medical Center
13. Fauzia Qureshi, MD, University of Maryland Medical Center
14. Katrina Read, University of Maryland Medical Center
15. Charles White, MD, University of Maryland Medical Center

16. Robert Gilkeson, MD, Cleveland Clinic, Cleveland, Ohio
17. Anne G. Osborne, University of Utah, Salt Lake City

International

1. Curso de Correlação Anatomo-Radiologica, Lisbon, Portugal
2. Fundación XIII Congreso Internacional de Radiologica, Madrid, Spain
3. Japanese College of Radiology, Kobe, Japan
4. Jornada Paulista de Radiologica, São Paulo, Brazil
5. Journées Françaises de Radiologie, Paris, France
6. Österreichische Röntgengesellschaft, Vienna, Austria
7. Vito Cantisani, MD, University La Sapienza, Rome, Italy
8. Ana Quiles, MD, Parc Tauli Hospital, Barcelona, Spain
9. Jordi Rimola, MD, Parc Tauli Hospital, Barcelona, Spain

PROFESSIONAL ACTIVITIES

Honors

HT Harcke:

- Legion of Merit
- Delaware National Guard Conspicuous Service Cross (1st Oak Leaf Cluster)
- Army Commendation Medal (3rd Oak Leaf Cluster)
- Afghanistan Campaign Medal

AD Levy:

- Society of Gastrointestinal Radiology Visiting Professor for 2005, funded by EZ-M Corporation
- Stanley M. Rogoff Lecture, Department of Radiology, University of Rochester
- Silver Medal Award, "The spleen: differential diagnosis with radiologic pathologic correlation," May 2005: New Orleans, La
- Army Commendation Medal (1st Oak Leaf Cluster)

Official Trips

1. March 2005, Society of Skeletal Radiology 2005, Orlando, Fla, LK Arcara, MD Murphey (ARP).
2. March 2005, 34th Annual Society of Gastrointestinal Radiology Annual Meeting, San Antonio, Tex, AD Levy (AFIP).
3. April 2005, Jornada Paulista de Radiologia, Sao Paulo, Brazil, AT Rosenfield, CM Chung, LM Glassman (ARP).
4. May 2005, Society of Thoracic Radiology, Florence, Italy, JR Galvin (ARP).
5. May 2005, 105th American Roentgen Ray Society Annual Meeting, New Orleans, La, AA Frazier, MD Murphey, PJ Woodward, GA Agrons (ARP).
6. May 2005, American Board of Radiology Oral Examination, Louisville, Ky, AD Levy, JR Galvin (ARP).
7. June 2005, American Society of Neuroradiology, Toronto, Ontario, KK Koeller (AFIP).
8. June 2005, Sociedade Portuguesa de Radiologia e Medicina Nuclear (SPRMN)-AFIP IX Curso de Correlação Anátomo Radiológica, Ponta Delgada, Azores, Portugal, AT Rosenfield, LM Glassman (ARP).
9. June 2005, Österreichische Röntgengesellschaft-AFIP, 11th Radiologisches Fortbildungsseminar, Vienna, Austria, AT Rosenfield, LM Glassman (ARP).
10. June 2005, Fundación Espanola de Radiología-AFIP, XV Curso Internacional de Correlación Radio-Patológica, Madrid, Spain, AT Rosenfield, LM Glassman (ARP).
11. September 2005, International Skeletal Society 2005 Meeting, Singapore, MD Murphey (ARP).
12. October 2005, Society of Radiologists in Ultrasound, Chicago, Ill, PJ Woodward.
13. October 2005, Journées Françaises de Radiologie, Paris, France, PJ Woodward (ARP).
14. November/December 2005, 91st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Ill, CM Chung (AFIP), AA Frazier (ARP), JR Galvin (ARP), HT Harcke (AFIP), DF Hatley, Jr (AFIP), I Jenkins (ARP), AD Levy (AFIP), MD Murphey (ARP), PJ Woodward (ARP), CD Williams (ARP).

Manuscripts Reviewed

Department staff reviewed articles for numerous professional journals in 2005:

1. *RadioGraphics*: GA Agrons, AA Frazier, JR Galvin, LM Glassman, KK Koeller, AD Levy, MD Murphey, PJ Woodward
2. *American Journal of Roentgenology*: AA Frazier, JR Galvin, LM Glassman, KK Koeller, MD Murphey
3. *Radiology*: LM Glassman, KK Koeller, AD Levy, MD Murphey
4. *Pediatric Radiology*: HT Harcke
5. *American Journal of Neuroradiology*: KK Koeller
6. *Journal of Computer Assisted Tomography*: AD Levy
7. *Skeletal Radiology*: MD Murphey
8. *Journal of Magnetic Resonance*: PJ Woodward
9. *Ultrasound in Obstetrics and Gynecology*: PJ Woodward

Editorial Boards

1. *RadioGraphics*: KK Koeller, AD Levy, PJ Woodward, JR Galvin (Deputy Editor)
2. *Skeletal Radiology*: MD Murphey

Editorships

1. Associate Editor, *FOCUS*, newsletter of American Association of Women in Radiology, AA Frazier.
2. Associate Editor, Education Center Materials, Radiological Society of North America, JR Galvin.
3. Editor, American College of Radiology CD-ROM Learning Disk, Neuroradiology, 2nd ed, KK Koeller.
4. Associate Editor, *Yearbook of Diagnostic Radiology*, AD Levy.



Christopher R. Owner, PhD
Chair
Date of Appointment – 1 January 2005



Annette R. Anderson, MS, RHIA
Associate Chair
Date of Appointment — 14 November 1994

DEPARTMENT OF REPOSITORY AND RESEARCH SERVICES

ORGANIZATION

The department is organized into 5 entities:

1. Office of the Chair
2. Research Services Division
3. Case Materials Accountability Division (CMAD)
4. Records Repository
5. Materials Repository

IMPACT

The Department of Repository and Research Services provides administrative support to the Center for Advanced Pathology (CAP) and the DoD in achieving the Institute's objectives in consultation, education, and research. The department's main functions are as follows:

- Maintaining the AFIP Repository, consisting of over 3 million case files and associated paraffin blocks, microscopic glass slides, and formalin-fixed tissue specimens.
- Receiving and accessioning case materials with the highest possible accountability and responding to contributors' requests for information on the status of cases submitted.
- Receipting for all express and courier mail and providing a case pick-up and delivery service throughout the Institute.
- Responding to outside requests for release of medical information and pathologic materials.
- Coding and entering pathologic diagnoses and case demographic data into the Institute's research database using the SNOMED coding system.
- Performing administrative quality review of case files following final report.
- Obtaining patient follow-up information for clinicopathologic correlation studies.
- Conducting periodic quality assurance audits to ensure case record completeness, integrity of the research database, and accurate tracking of case materials.
- Generate and mail invoices for civilian billable cases using appropriate CPT codes while ensuring all services and tests rendered are accurately and completely accounted for in PIMS.
- Coordinating research protocol administrative requirements including review, approval, and monitoring of research activities by the various Institute research-related committees, including the Institutional Review Board (IRB), the Institutional Animal Care and Use Committee (IACUC), and the Research Committee.
- Publishing the Institute annual research progress report, periodically updating other research-related publications, and preparing reports as required for outside monitoring agencies.
- Maintaining a repository of pathologic materials from closed military medical facilities in accordance with applicable DoD regulations and federal statutes.

- Serving as Institute Coordinator for the Partnership Program with Rock Terrace High School, Rockville, Md.
- Providing budgetary monitoring and policy guidance for the DoD Automated Central Tumor Registry (ACTUR), the DoD Central Cancer Registry, and hosting the annual DoD Cancer Registrars Training Conference.
- Providing management support, policy guidance, and quality assurance monitoring for the Institute's digital imaging contract task orders concerning document conversion.

OFFICE OF THE CHAIR

The following are programs and initiatives that impact more than one division or are special programs managed out of the Office of the Chair.

Digital Imaging Effort: The Institute's digital imaging initiative entered its fourth year with Information Manufacturing Corporation (IMC). Although there was no active conversion tasking regarding base closure records, there was a knowledge management initiative to develop a method for extracting pertinent data from the database for construction of designated tissue microarrays. This effort was coming to completion at the end of 2005 and will be tested in 2006. During 2005, the number of images to be converted to digital format for the AFIP Main Accessioned Repository was substantially increased. Optical character recognition of diagnoses statements from records converted in 2003 was also accomplished. Conversion of Department of Legal Medicine claims files continued as in the previous contract, while a new task order for imaging WRAMC Tumor Registry files was begun. Due to the success of the MIS Library pilot study last year, a separate conversion task order was added for this collection this year. The number of cases or records currently converted and available for electronic retrieval under each of the separate task orders is as follows:

AFIP Main Accessioned Repository	641,218
Legal Medicine Claims Files	26,039
Andrews AFB Cancer Registry	2,703
Walter Reed Army Medical Center	33,374
Base Realignment and Closure Records	4,167,533
BRAC Facility Logs	573
Total Records	4,879,371

DoD Cancer Registry Program: Substantial progress was made this year in improving the quality and completeness of DoD Cancer Registry Program data.

- A very successful annual training conference for DoD Tumor Registrars was held in New Orleans, La in May 2005. The theme was "Cage'n Cancer and All that Jazz." Critiques of the conference indicated that all presentations were well received.
- The DoD Central Registry staff had a very busy year reviewing all the data from the years 1998 through 2003 and forwarding identified discrepancies to the various medical facilities for correction and upload into ACTUR. All corrections for years 1998 through 2001 have been received and corrections for 2002 and 2003 are almost completed. Consolidation was put on hold pending conversion of the central registry software to the system developed by the CDC, which will take place in March 2006. Searches were run on the AFIP database for reportable cancers received in 2002 and results given to service consultants to match against ACTUR as a case-finding tool to identify missing cases.
- DoD Central Registry staff assisted in quality review of random sample images of WRAMC tumor registry files being converted to digital format. Very few errors were found in the conversion process, while a number of misfiles were identified, as well as cases that did not show up in ACTUR.

Rock Terrace School Partnership Program: The Institute's long-standing relationship with Rock Terrace High School continued in 2005. Approximately 15 students worked at the Institute as volunteer student aides and paid part-time workers. Most worked in the Materials Repository Division and the Records Repository Division. Students continued their labor-intensive project of inventorying case folders within the Records Repository and updating the

PIMS locator system with the information. They also assisted in breaking down bulk return of slides into appropriate groupings for eventual acknowledgement and filing, while the more experienced students actually filed slides. This year the students also increased their capacity to shred patient-identifiable documents and were responsible for folding and mailing invoices generated under the Civilian Consultation Program. In addition, this year the students began mailing mid-month statements to civilian contributors for the AFIP Business Office.

HIPAA Training: With continued phasing bimonthly by category of both annual HIPAA Refresher and Security Training this year, AFIP was able to consistently meet training targets at the 98% or above level. Updated posters were placed at strategic locations throughout the Institute. In mid-year, the AFIP Privacy Regulation was published and included in the Case Processing and Safety Handbook distributed to all pathology departments prior to the CAP inspection.

RESEARCH SERVICES DIVISION

STAFF

Annette R. Anderson, MS, RHIA, Associate Chair
Chonte' Long, Secretary

IMPACT

The Research Services Division supports the mission of the AFIP through the following activities:

- Reviewing and processing protocols and educational projects submitted by AFIP staff for approval and funding.
- Ensuring protocol administrative requirements are met and maintaining official protocol files.
- Coordinating activities of the AFIP Research Committee, Institutional Review Board (IRB), and Institutional Animal Care and Use Committee (IACUC).
- Performing annual protocol reviews, conducting semiannual laboratory animal facility inspections, drafting meeting minutes, preparing committee action documents and notices to investigators, and preparing required reports for various accrediting and oversight organizations.
- Monitoring the status of conditionally approved projects and publishing a monthly status report of all active protocols within the Institute.
- Coordinating publication of the AFIP Annual Research Progress Report and the Institute's Annual Report to Congress on Laboratory Animal Care and Use.

ACTIVITIES

The year 2005 ended with a total of 177 active in-house projects, extramural grants, research contracts, and agreements. This is a 9% decrease from the previous year and continues the downward trend in the number of active projects over the past several years as resources and staff became tighter due to the budgetary limitations of using DHP funding for research purposes, as well as the loss of key staff in the wake of the AFIP BRAC closing announcement.

Institutional Animal Care and Use Committee (IACUC): Of note this year was the survey by the Association for the Assessment and Accreditation of Laboratory Animal Care (AALAC) in June 2005. Only a few very minor deficiencies were noted and the Institute received full accreditation. The required semiannual facility inspections and program reviews took place in March and September. All the problems with the surgical suite have been resolved and the lab animal surgical suite is now a fully functioning state-of-the-art facility. Unfortunately, due to the departure of all the laboratory animal investigators associated with the Department of Cardiovascular Pathology at the end of 2004, there was only one active lab animal protocol left open at the end of 2005, with the exception of the DLAM training and quality assurance protocols. All other lab animal protocols were closed out over the course of the year and very little new work was submitted to replace them. Two new lab animal protocols were approved in December 2005 and should get started in the new year.

Institutional Review Board (IRB): Efforts of the IRB focused on implementation of new, more comprehensive training requirements for investigators, including a new PowerPoint presentation on local policies and procedures, as well as research ethics. In addition, significant progress was made toward development and implementation of an Institute-wide training database with IRB and IACUC training requirements used as the pilot study for the system. The IRB also participated in review of the new revision of AFIP Regulation 70-1, as did the IACUC and the Research Committee, with the new revision published in June 2005. This new version substantially revised protocol submission and review procedures and resulted in the redesign of many of the forms used.

Research Committee: The Research Committee reviewed and the Director gave final approval to a total of 41 new protocols this year, with approximately 20 more in various stages of review at the end of 2005. Of note was the withholding, starting in November 2005, of approval for newly submitted protocols funded solely by AFIP and/or ARP resources. Several of these protocols are now in a deferral status based on the AFIP Director's decision to review this issue at the spring 2006 Board of Governors Meeting. The various research-related committees continue to review these protocols as they are submitted, but final approval is pending the results of the spring meeting.

CASE MATERIALS ACCOUNTABILITY DIVISION



Myra A. Moxley
Chief

Date of Appointment – 12 October 1993

STAFF

Jacqueline Martinez, Triage Manager (ARP)
Rosetta Jackson, Supervisory Medical Records Technician, Gillette CMAD
Gloria Countiss, Lead Medical Records Technician
Norma Garey, Lead Medical Records Technician
Adrian Bingham, Lead Medical Records Technician
Geraldine Key-Lovett, Medical Records Technician
Frances Miller, Medical Records Technician
Velda Jones, Medical Records Technician
Constance Patterson, Medical Records Technician, Gillette
Travis Jones, Medical Records Technician
Andrienne Kates, Medical Records Technician
Karen Mills, Medical Records Technician (ARP)
Tamara Tolver, Medical Records Technician (Anteon)
Quennitta Winzor, Medical Records Technician (Anteon)
Ramona James, Medical Records Technician (Anteon)
Paula Lecounte, Medical Records Technician (Anteon)
Bonnie McCloud, Triage Clerk (Advantage)
Stephen Banda, Accessions Clerk
Joel Ryerson, Accessions Clerk
Eric Curry, Messenger (ARP)
Roneice James, Messenger (ARP)
Christopher Jackson, Messenger (ARP)

IMPACT

The Case Materials Accountability Division (CMAD) is responsible for the accurate receipt and accessioning of all pathology cases submitted for consultation, education, and research. Cases are submitted from the DoD and other federal agencies, including the Department of Veterans Affairs, and from civilian pathologists all over the United States and the world. Cases received

with discrepancies, such as mismatched paperwork and materials or missing items, are held and the contributor called for verification. All discrepancies must be resolved or explained before the case can be processed. The division is also responsible for receipt of all express and courier mail during duty hours, and it runs a messenger service that picks up and delivers pathologic case materials and packages throughout the Institute several times daily.

ACTIVITIES

<i>Workload</i>	<i>2004</i>	<i>2005</i>
Cases Accessioned	59,636	54,952
Federal Accessions	41,774	41,724
Civilian Accessions	17,862	13,228

During 2005 the division experienced a significant turnover of contract personnel, largely due to training issues, as well as other losses, some of which were not filled due to decreased accessions over the course of the year. However, our Department of the Army medical records technicians were upgraded from GS-05 to GS-06 and the lead technicians from GS-06 to GS-07 after many years of assuming increasing responsibilities for materials accountability and accuracy.

All division SOPs were updated in anticipation of the CAP accreditation inspection in October 2005, and all technicians were issued an individual training and reference notebook. Enhancements in the search capabilities of PIMS resulted in a decrease in the number of cases being deaccessioned this year. Also, a very successful audit addressing errors in contributor source codes, with corrections made during the auditing process, was accomplished and significantly improved the accuracy of contributor source reporting out of PIMS.

RECORDS REPOSITORY DIVISION



Mercedes E. Russell
Chief
Date of Appointment – 2 October 1995

IMPACT

The Records Repository Division is organized into 2 branches: the Records Archives Branch, including the Medical Information Release Office, and the Pathology Data Branch. Both branches work closely together and many personnel have been cross-trained in each other's functions.

Record Archives Branch

- Receives, stores, maintains, and retrieves all forms (microfiche, digital images, paper) of pathologic case files.
- Conducts inventory verification, appropriately identifies sequences, and performs initial document preparation functions such as ordering and de-duplicating records prior to being transferred to the digital imaging contractor.
- Matches Legal Medicine Claims files with the applicable accessioned record, verifies patient data in PIMS or accessions the case as required.
- Performs quality assurance review on document images and passes or fails the images as applicable.
- Retrieves previously accessioned case folders in response to accessioning of a new case sequence on the same patient.
- Returns original x-rays to contributors.
- Processes all requests for release of information from pathologic case files.
- Processes all requests for loan or return of submitted pathologic materials (slides, paraffin blocks, or wet tissue specimens).

- Tracks submission of all VA claims cases.
- Rotates into triage function as assigned.
- Assists in receiving and accessioning Radiology class cases and Environmental Pathology Registry cases (KUW, POW, and Agent Orange).
- Maintains Institute Special Handling file and performs annual inventory and screening of these records.
- Assists in record location audits and in looking for missing or misplaced records.

Pathology Data Branch

- Abstracts, codes, and classifies final diagnoses of accessioned cases according to SNOMED International.
- Retrieves demographic and diagnostic data from the research database to assist Institute staff members in research and teaching endeavors.
Obtains patient follow-up information in support of approved clinicopathologic correlation or descriptive pathology studies.
Contacts contributing pathologists, hospitals, tumor registrars, patients, military records centers, and clinicians to obtain complete information.
Prepares search requests to forward to the National Death Index (NDI), including NDI Plus, at the request of investigators.
Rotates into the triage function as assigned.
Assists in receiving and accessioning Radiology class cases and Environmental Pathology Registry cases (KUW, POW, and Agent Orange).
Generates invoices on civilian cases using applicable CPT codes; ensures all patient and contributor demographic data is accurate and that all laboratory tests ordered in PIMS are accounted for through the billing or no bill memo functions; mails invoices if required.

RECORD ARCHIVES BRANCH/MEDICAL INFORMATION RELEASE OFFICE

STAFF

Louise Matthews, Lead Medical Records Technician
Eva D. Duncan, Medical Information Release Specialist
Shirley Shields, Medical Records Technician
Tiloria Brooks-White, Medical Records Technician
Lenora Vaughn, Medical Records Technician
Pamela Poteat, Medical Records Technician
Serita Hewitt, Medical Records Technician
Glenda Taylor, Medical Records Technician (ARP)
William Moore, Lead Quality Assurance Technician (Anteon)
LaTonya Fleming, Quality Assurance Technician (Anteon)
Sara Reddix, Quality Assurance Technician (Anteon)
Lolita Johnson, Quality Assurance Technician (Anteon)
Roderica Reyes, Quality Assurance Technician (Anteon)
Wenda Andrews, Quality Assurance Technician (Anteon)
Tiffani Nelson, Quality Assurance Technician (Anteon)
Berta Mathews, Quality Assurance Technician (Anteon)
Patricia Teague-Pollard, Quality Assurance Technician (Anteon)

ACTIVITIES

<i>Workload</i> _____	<i>2004</i> _____	<i>2005</i>
Folder/Materials Actions Received	74,174	81,633
Retrieval/Sent Actions	11,590	9,074
Information Release Requests	2,685	1,594

This year a project was begun to retrieve folders that have been maintained in the departments for many years. Thousands of folders were retrieved from the Department of Oral Pathology and prepared for forwarding to our digital imaging contractor. This project is currently under-way in the Department of Genitourinary Pathology. Due to the large increase in the number of

images to be processed under the digital imaging contract this year, the Records Repository had to significantly increase our Anteon staff to assist in inventory verification and the quality assurance workload generated. All GS-05 medical records technicians were upgraded to GS-06 and Lead Technician and Information Release Specialist were upgraded from GS-06 to GS-07 after many years of assuming increasing responsibilities. Additionally, a new paper records destruction protocol was approved for the Department of Legal Medicine accessioned case files, as well as the main repository files that have been successfully imaged.

PATHOLOGY DATA BRANCH

STAFF

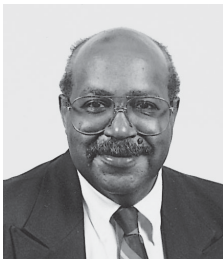
Toni Dickens, Lead Medical Records Technician
 Janice Powell, Medical Records Technician
 Terry Lloyd, Medical Records Technician
 Tammie Miles, Medical Records Technician
 Jacqueline Pinnix, Medical Records Technician
 Elaine Tabernilla, Medical Records Technician (VA)
 Frances Wise, Medical Records Technician (VA)

ACTIVITIES

<i>Workload</i>	<i>2004</i>	<i>2005</i>
Cases Uploaded	45,064	68,864
Data Retrievals	162	235
Invoices Generated (Since 1 Oct 2004)	3,275	10,774

Since assuming responsibility for generating invoices for civilian billable cases with no additional resources, and the large influx of records received that have never been coded, no further progress could be made in eliminating the coding backlog, although substantially more cases were coded this year than last. It remains at almost 12 months. In addition, as the digital imaging project progresses and older records are prepared, it was determined that many of these were not in PIMS. Apparently there was a problem during the PACAMS to PIMS conversion in 1997, and many records were lost and have to be re-entered into the system and coded prior to being forwarded for digital imaging. In addition, due to staff shortages in the Case Materials Accountability Division, Path Data and Records Repository staff have had to assist Case Triage and in accessioning of Radiology class cases. Path Data staff are, however, keeping up with all civilian billing requirements and, other than cases put on hold for pathology department problem resolution, no billing backlogs exist.

MATERIALS REPOSITORY DIVISION



Kenneth A. Rawley
 Chief
 Date of Appointment – 11 April 1982

STAFF

Alfonzo Riddick, Materials Handler Warehouse Supervisor
 Gregory Corbin, Materials Handler Work Leader
 Thelma P. Best, Materials Handler
 Ronald L. Duell, Materials Handler

- Wayne Hamilton, Materials Handler
- Willie Lovett, Materials Handler
- Larry Middleton, Materials Handler
- James C. Stinney, Materials Handler
- Audrey E. Tinker, Materials Handler
- Marvin L. Alston, Materials Handler/Driver
- Kendrick Summers, Materials Handler
- John McClenny, Materials Handler
- Douglas Underwood, Materials Handler
- Ronnie Payne, Materials Handler (ARP)
- Tyrone Connie, Materials Handler (ARP)
- James Nelson, Materials Handler (Anteon)
- Della Owens, Materials Handler (Anteon)
- Brian Mazon, Materials Handler (Anteon)
- Damon Battle, Materials Handler (IMC)

IMPACT

The Materials Repository Division processes, stores, and retrieves accessioned formalin-fixed tissue, microscopic glass slides, and paraffin blocks in support of the Institute’s consultation, education, and research missions. In addition, a tissue-resealing laboratory is maintained for use in processing formalin-fixed tissue for storage and for tissue resealing and maintenance functions. The division also maintains a repository of pathologic materials and reports from closed military medical facilities. The division maintains a storage area within Building 54, along with two 15,000-square-foot warehouses located on the Forest Glen Annex in Silver Spring, Md.

ACTIVITIES

<i>Workload</i>	<i>2004</i>	<i>2005</i>
Cases Received for File	78,426	76,948
Cases Forwarded	11,236	10,178

The Materials Repository was inundated with a large volume of materials being returned to the Repository by researchers who departed the Institute. This large volume of slides, blocks, and tissues are being processed and added to the main repository files. Toward the end of 2005, a new version of PIMS required that the surgical/cytology/autopsy number be entered into the system when acknowledging materials for file or when sending materials out of the repository. Additional time is needed to perform these functions and, while improving overall accuracy of the database, processing has slowed as no additional resources were received. As a result of their assuming increasing responsibilities for many years, all WG-05 Materials Handlers were upgraded to WG-06 and the WS-05 Warehouse Supervisor was upgraded to a WS-06 Supervisor.

During 2005, Materials Repository personnel assisted in oversight of the digital imaging contract, performance of inventory verification, and moving boxes of records back and forth from the AFIP main building to Forest Glen.

As part of the Repository Modernization Contract this year, all 4 of the microscopic glass slide robotic inserter/extractor (IE) devices were replaced. In addition, part of the high-density shelving in Building 510 was removed to make room for new Vertical Lift Module (VLM) equipment that was needed to facilitate expansion of the slide repository. All these equipment items are currently in place and the new VLMs are being loaded as slides are sent over from the main building.



Leslie H. Sobin, MD, SES
Director
Date of Appointment — 20 September 1987

CENTER FOR SCIENTIFIC PUBLICATIONS

STAFF

Leslie H. Sobin, MD, SES, Director
Frances W. Card, Visual Information Specialist
Bonnie L. Casey, Scientific Editor, ARP
(D) James C. Eastep, DVM, MS, Computer-Aided Instruction Consultant, ARP (part-time)
Linda A. Murakata, CDR, MC, USNR, Associate Editor (part-time)
Michele Richman, Editor/Multimedia Production Technician, ARP

IMPACT

The Center for Scientific Publications:

- oversees editorial and publishing issues of Institute-wide interest,
- reviews proposals for AFIP-generated publications,
- provides editorial review of manuscripts,
- oversees the processing and transmitting of manuscripts to publishers,
- is responsible for clearance of manuscripts and abstracts according to DoD directives,
- maintains the Institute's publications records and archives,
- reviews requests for permission to reprint published materials,
- edits, designs, and produces the Annual Report, the Annual Research Progress Report, the Institute's non-serial publications, the *AFIP Letter*, informational brochures, and catalogs, produces the Museum newsletter,
- provides expert review and consultation for the AFIP/ARP Atlases of Tumor and Nontumor Pathology,
- designs, coordinates, and produces CD-ROMs of Institute publications and provides user support,
- promotes the development and application of standardized diagnostic nomenclatures and classifications of the World Health Organization (WHO) and the International Union Against Cancer (UICC),
- coordinates revision of the UICC's TNM Classification and oversees publication of the revised editions.

In 2005, the center for collaborated with ARP in the production of an atlas of pathology on tumors of the bones and joints and an atlas of non-neoplastic kidney diseases. The worldwide distribution of these has great impact on the Institute's reputation as a major international source of authoritative information, standardized classifications and nomenclature. The outstanding quality of illustrations, the hallmark of AFIP/ARP publications, has drawn continued praise in scientific journal reviews.

Work on the fourth series of tumor atlases and on the nontumor atlas series continues in print and online formats. There has been close collaboration with the International Agency for Research on Cancer to develop the WHO Classification of Tumors series, Pathology and Genetics of Tumors, and the International Classification of Diseases for Oncology (ICD-O). Work continues with the UICC on tumor classification and staging (TNM system) and the interaction of staging with nonanatomic prognostic factors. The AFIP carried out a quality assessment project for the WHO's Pan American Health Organization on gynecological

cytologic and histologic diagnoses of cervical cancer in Surinam.

PROFESSIONAL ACTIVITIES

Official Trips

1. May 2005, TNM Prognostic Factors Project Meeting, International Union Against Cancer, Geneva, Switzerland, LH Sobin (UICC).
2. September 2005, American Joint Committee on Cancer Annual Meeting, Chicago, Ill, LH Sobin (American College of Surgeons).
3. November 2005, International Association for the Study of Lung Tumors Meeting on Lung Cancer Staging, London, UK, LH Sobin (International Association for the Study of Lung Tumors).

Editorships

LH Sobin:

1. Associate Editor, AFIP Atlas of Tumor Pathology, 4th Series
2. Associate Editor, AFIP/ARP Atlas of Nontumor Pathology.
3. Series Coeditor, WHO Classification of Tumors: Pathology and Genetics of Tumors.
4. Coeditor, TNM Classification of Malignant Tumors, 6th ed.
5. Coeditor, Prognostic Factors in Cancer, 3rd ed.

AFIP Staff Publications (see Cumulative Publications List)

Other Publications

1. Casey BL, Card FW. *Armed Forces Institute of Pathology Annual Report 2004*. Washington, DC: Armed Forces Institute of Pathology; 2005 (print and CD-ROM versions).
2. Kelly CC, Casey BL, Card FW. *AFIP Letter*. 2005; vol 163:nos 1-3.
3. Solomon S, MacGregor C, Card FW, Casey BL. *Flesh and Bones*. National Museum of Health and Medicine. 2005; vol 5:nos 1-6.
4. Wear DJ, Casey BL, reviewers. *JAMA*. 2005;293:1801. Review of: Glynn I, Glynn J. *The Life and Death of Smallpox*.

Books and Fascicles Digitized and Proofed for Online Publication

AFIP Atlases of Tumor and Nontumor Pathology

1. Colby TV, Koss M, Travis W. *Tumors of the Lower Respiratory Tract*.
2. Warnke RA, Weiss LM, Chan JK, et al. *Tumors of the Lymph Nodes and Spleen*.
3. Battifora H, McCaughey WT. *Tumors of the Serosal Membranes*.
4. Burke A, Virmani R. *Tumors of the Heart and Great Vessels*.
5. Ellis G, Auclair P. *Tumors of the Salivary Glands*.
6. Lewin KL, Appelman HD. *Tumors of the Esophagus and Stomach*.
7. Shimosato Y, Mukai K. *Tumors of the Mediastinum*.
8. Albores-Saavedra J, Henson DE, Klimstra DS. *Tumors of the Gallbladder, Extrahepatic Bile Ducts, and Ampulla of Vater*.
9. Unni KK, Inwards CY, Bridge JA, Kindblom L-G, Wold LE. *Tumors of the Bones and Joints*.
10. D'Agati VD, Jennette JC, Silva FG. *Non-neoplastic Kidney Diseases*.

WHO International Histological Classification of Tumors of Domestic Animals

1. Hendrick MJ, Mahaffey EA, Moore FM, Vos JH, Walder EJ. *Histological Classification of Mesenchymal Tumors of Skin and Soft Tissue of Domestic Animals*. Vol 2. 2nd ed.
2. Goldschmidt MH, Dunstan RW, Stannard AA, von Tscharner C, Walder EJ, Yager JA. *Histological Classification of Epithelial and Melanocytic Tumors of the Skin of Domestic Animals*. Vol 3. 2nd ed.
3. Kennedy PC, Cullen JM, Edwards JF, Goldschmidt MH, Larsen S, Munson L, Nielsen S. *Histological Classification of Tumors of the Genital System of Domestic Animals*. Vol 4. 2nd ed.
4. Koestner A, Bilzer T, Fatzer R, Schulman FY, Summers BA, Van Winkle TJ. *Histological Classification of Tumors of the Nervous System of Domestic Animals*. Vol 5. 2nd ed.
5. Misdorp W, Else RW, Hellmen E, Lipscomb TP. *Histological Classification of Mammary Tumors of the Cat and Dog*. Vol 7. 2nd ed.

Special Publications

Emory TS, Carpenter HA, Gostout CJ, Sobin LH. *Atlas of Gastrointestinal Endoscopy and Endoscopic Biopsies*. Washington, DC: AFIP/ARP; 2000.



Jeffrey T. Mason, PhD

Chair

Date of Appointment — 1 May 2004

DEPARTMENT OF BIOPHYSICS

STAFF

Scientific

Jeffrey T. Mason, PhD, Chair

Kimberlee Potter, PhD, Director, AFIP Magnetic Resonance Imaging Facility

Vladimir K. Rait, PhD, Research Associate

Junkun He, PhD, Research Associate

Robert E. Cunningham, MS, Biologist and Histopathologist

Ingrid Chesnick, BS, Technician

IMPACT

Biotoxin Detection: We are developing simple field-deployable assay systems for detecting biological toxins with high specificity and at sensitivity levels approaching 100 molecules. During the past year we have optimized an assay called liposome polymerase chain reaction (LPCR) for the detection of biological toxins in fluids. Using this assay we can detect cholera toxin in deionized water with a detection threshold and accuracy (95% confidence limit) of 10 ± 2 molecules. In addition, we can detect cholera toxin in human urine (43 ± 12 molecules) and farm run-off water (173 ± 112 molecules). We have also developed an ILPCR assay for botulinum neurotoxin type A in deionized water (12 ± 5 molecules). These assays are 2 to 3 orders of magnitude more sensitive than current assays for cholera or botulinum toxins. A manuscript describing this work has been accepted for publication in *Nature Biotechnology*. This research is critical to homeland security, the protection of military personnel in combat or peacekeeping operations, and the forensic analysis of terrorist incidents. We prepared a patent application for our assay method and it has been approved by USAMRAA for submission to the US Patent and Trademark Office. This work is funded by a grant from the Peer Reviewed Medical Research Program (PRMRP) supplement to the US Army Medical Research and Materiel Command (USAMRMC).

Chemistry of Formalin Fixation: We are developing methods to reverse the effects of formalin fixation on proteins and RNA so that these molecules can be recovered from formalin-fixed paraffin-embedded tissues for retrospective proteomic and genomic analyses. If successful, this research could dramatically improve our ability to diagnose and treat numerous diseases. These methods are also highly relevant to the evaluation of formaldehyde-treated pathology specimens obtained from military casualties that have been exposed to infectious or toxic biowarfare agents. During the past year we have also demonstrated that exposure to ethanol during tissue histology leads to the depurination of some RNA-formaldehyde adducts and to the formation of covalent modifications that are likely to interfere with subsequent attempts to amplify the RNA by RT-PCR. The National Cancer Institute funded a 2-year grant to extend this work in 2005.

Studies of Bone Development and Tissue-Engineered Bone Implants: Traumatic bone injury and bone disease constitute the majority of medical cases of active duty personnel, costing the military millions of dollars and thousands of lost man-hours per year. We are actively involved in using magnetic resonance microscopy (MRM) to develop and evaluate tissue-engineered bone implants for reconstructive bone surgery and to evaluate bone disease. We employ MRM as a noninvasive high-resolution imaging modality to assess bone repair, bone and cartilage

growth, and the infiltration of bone matrix into various scaffold materials. The goal of this work is to develop tissue-engineered bone implants for repair of injured or diseased bone and to compare the effectiveness of these constructs against more traditional strategies involving bone grafts. The results of this research will have a significant impact on the medical treatment and rehabilitation of active duty military personnel. The work is being funded by a 4-year grant from the National Institutes of Health.

Additional Military-Relevant Research: We are employing MRM in an ongoing project in collaboration with Dr. Darlene Ketten of the Woods Hole Oceanographic Institute and Harvard Medical School to image the membranous labyrinths of the human cochlea, with the goal of understanding hearing loss in traumatic ear injuries and optimizing the development and placement of cochlear implants in restoring auditory function. We are also employing MRM for wound pattern analysis in skin and eyes for applications in forensic medicine. An externally funded collaborative research project with the Department of Genitourinary Pathology to image prostatic carcinoma by magnetic resonance microscopy, initiated during 2004, has continued during 2005. A collaborative project with Dr. Jeffrey K. Taubenberger, Chair, Department of Molecular Pathology, was initiated during 2005. The goal of this project is to histochemically localize antibodies to cell-surface lectins in paraffin embedded archival influenza cases. This capability would further identify influenza surface isotype changes, which would enhance tracking and virulence monitoring of potential influenza outbreaks. Finally, we have collaborated with the Armed Forces DNA Identification Laboratory (AFDIL) to apply nucleic acid recovery methods developed in our laboratory to the recovery of trace DNA from bone specimens recovered from the Korean conflict. Preliminary results appear promising.

Publicity: The immunoliposome polymerase chain reaction assay was featured in the journal *Science* in an article entitled "New techniques aim to thwart terrorists," by Y. Bhattacharjee (*Science* 2005;309:1811).

CONSULTATION

The AFIP Magnetic Resonance Imaging Facility provides magnetic resonance microscopic imaging services to the AFIP and other military and civilian collaborators. Magnetic resonance microscopy techniques in cardiovascular, pediatric, forensic, otologic, orthopedic, genitourinary, and ophthalmic pathology are being developed for analysis of cases for research and potential diagnostic applications.

<i>Cases</i>	<i>Completed</i>
Interdepartmental	15
Total	15

EDUCATION

Courses: Department staff participated as faculty in one class sponsored by the Foundation for Advanced Education in the Sciences at NIH.

Trainees: The department provided training to one research assistant in 2005.

Presentations

1. January 2005: Washington, DC, AFIP, "Magnetic resonance microscopy of bone formation," K Potter.
2. January 2005: Washington, DC, AFIP, "Modeling formalin fixation and antigen retrieval: interrelationship between formaldehyde cross-linking, protein structure, immunoreactivity, and heat treatment," JT Mason.
3. September 2005: Washington, DC, NIH Tissue Preservation Workshop, "Modeling formalin fixation and antigen retrieval with bovine pancreatic ribonuclease A," JT Mason.
4. September 2005: Washington, DC, American Chemical Society Annual Meeting, "Immunoliposome-PCR: an ultrasensitive assay format for the detection of biological toxins and proteins," JT Mason.
5. December 2005: Baltimore, Md, 2005 Annual Interagency Botulism Research Coordinating Committee, "Detection of botulinum neurotoxins by immunoliposome polymerase chain reaction," JT Mason.

RESEARCH

Journal Article

Landis WJ, Jacquet R, Hillyer J, Lowder E, Yanke A, Siperko L, Asamura S, Kusuhara H, Enjo M, Chubinskaya S, Potter K, Isogai N. Design and assessment of a tissue-engineered model of human phalanges and small joint. *Orthod Craniofac Res.* 2005;8:303-12.

Abstracts

1. O'Leary TJ, Rait VK, Zhang Q, Fabris D, Mason JT. Conversions of formaldehyde-modified 2'-deoxyadenosine-5'-monophosphate in conditions modeling formalin-fixed tissue dehydration. Association of Molecular Pathology Annual Meeting. 2005;4:356a.
2. Furusato B, Potter K, Becker RL, Sesterhenn IA, Davis CJ, Mason JT. Prostatic carcinoma detection in radical prostatectomies by magnetic resonance microscopy and light microscopy. Biophysical Society. 2005;88:346a.
3. Potter K, Avallone F, Eidelman N. Spatial mapping of collagen deposition in bone cultures by magnetic resonance and FTIR micro-imaging. *Proc Int Soc Magn Reson Med.* 2005;13:1990.
4. Potter K, Chesnick I, Todorov T, Centeno JA, Small J. Manganese-enhanced magnetic resonance microscopy of mineralization. *Proc Int Soc Magn Reson Med.* 2005;13:1986.
5. Rait VK, Mason JT, O'Leary TJ. Modeling formalin fixation and antigen retrieval with bovine pancreatic ribonuclease A. *Biophys J.* 2005;88:3a.

Projects

1. Formalin fixation and recovery of RNA and protein.
2. A field-deployable ultrasensitive assay system for biological toxins using immunoliposome-DNA amplification hybrids.
3. Nuclear microarrays for quantitative high-throughput molecular screening of tissue specimens.
4. Correlation of NMR measurable parameters.
5. Bone formation studies by magnetic resonance microscopy.
6. NMR microscopy of metastatic disease.

Collaborators

Military

1. Dr. Tiffany Heady, WRAIR, Silver Spring, Md.
2. Dr. Thomas Johnson, Department of Preventative Medicine, USUHS, Bethesda, Md.

Civilian

1. Dr. Naomi Eidelman, American Dental Association, Gaithersburg, Md.
2. Dr. Darlene Ketten, Harvard Medical School, Boston, Mass.
3. Dr. Michael M. Batenjany, Novagen, Madison, Wis.
4. Dr. William Landis, Dr. Lorraine Siperko, Northwestern Ohio Universities College of Medicine, Rootstown, Ohio.
5. Dr. John Small, National Institute of Standards and Technologies, Gaithersburg, Md.
6. Dr. Paul Anderson, Dr. Graham Davis, Queen Mary College, University of London, UK.
7. Dr. Michael Thali, Institute for Forensic Medicine, University of Bern, Switzerland.
8. Dr. Anthony Guiseppi-Eli, Virginia Commonwealth University, Richmond.
9. Dr. Sandi Kwee, Hamamatsu/Queen's PET Imaging Center, Queen's Medical Center, Honolulu, Hawaii.
10. Dr. William Oliver, Georgia Bureau of Investigation, Trion, Ga.
11. Dr. Jamie Downs, Regional Medical Examiner, Savannah, Ga.

Interdepartmental

1. Dr. Isabell Sesterhenn, Genitourinary Pathology, AFIP.
2. Dr. Renu Virmani, Cardiovascular Pathology, AFIP.
3. Dr. Jose Centeno, Dr. Todor Todorov, Environmental and Toxicologic Pathology, AFIP.

PROFESSIONAL ACTIVITIES

Official Trips

1. January 2005, NIH, DoD representative to the Advisory Council of the National Institute of General Medical Sciences, Bethesda, Md, JT Mason.

2. April 2005, NIH, special reviewer for Musculoskeletal, Oral and Skin Sciences Study Section, Bethesda, Md, K Potter.
3. August 2005, member, working group for the evaluation of the Minority Opportunities in Research (MORE) program, NIH, Bethesda, Md, JT Mason.
4. September 2005, NIH, DoD representative to the Advisory Council of the National Institute of General Medical Sciences, Bethesda, Md, JT Mason.
5. December 2005, NIH, special reviewer for Musculoskeletal, Oral and Skin Sciences Study Section, Bethesda, Md, K Potter.
6. December 2005, Annual Interagency Botulism Research Coordinating Committee Meeting, Baltimore, Md, JT Mason.

Editorial Board

Molecular Membrane Biology, JT Mason.

Manuscripts Reviewed

JT Mason:

1. *Biochimica et Biophysica Acta*
2. *Biophysical Journal*
3. *Chemistry and Physics of Lipids*
4. *J Histochemistry and Cytochemistry*
5. *Journal of Membrane Biology*

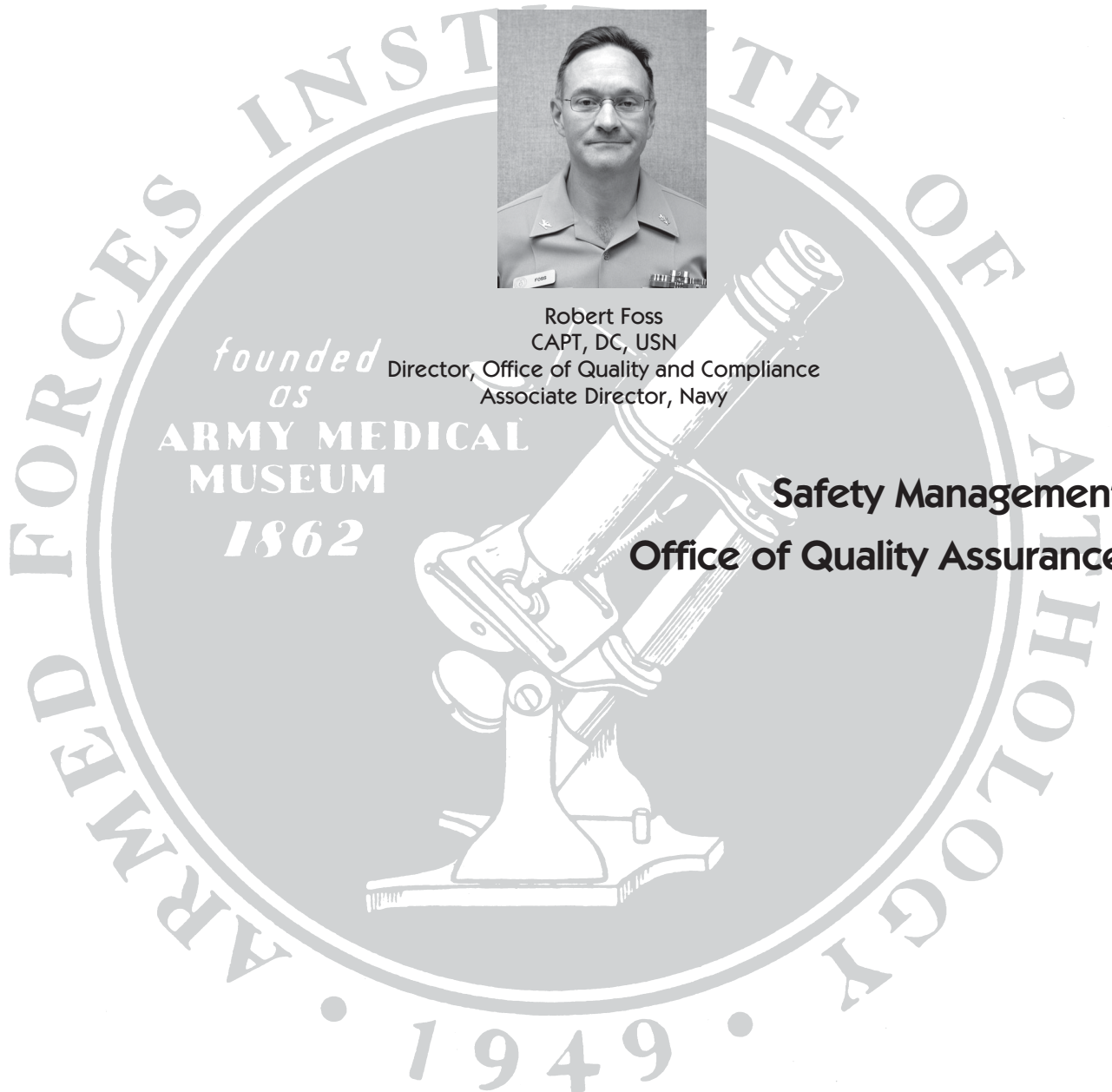
OFFICE OF QUALITY AND COMPLIANCE



Robert Foss
CAPT, DC, USN
Director, Office of Quality and Compliance
Associate Director, Navy

*founded
as*
**ARMY MEDICAL
MUSEUM**
1862

**Safety Management
Office of Quality Assurance**





Brenda L. Smith, MS, CSP, CHSP
Director
Date of Appointment – 21 May 2001

OFFICE OF SAFETY MANAGEMENT

STAFF

Brenda L. Smith, MS, CSP, CHSP, Director, Biological Safety, Occupational Health and Environmental Management
Tyrone L. Green, MS, CHSP, Safety and Occupational Health Manager
Jerome D. Escoe, Environmental Technician (detailed)
La'Prea R. Holton, Administrator

IMPACT

The Office of Safety Management:

- Monitors guidelines set forth by the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), and the College of American Pathologists (CAP).
- Serves as AFIP liaison with US Army Medical Command (MEDCOM) Safety Office.
- Coordinates with WRAMC's offices of Safety, Occupational Health, Industrial Hygiene, Health Physics, Department of Public Works, and Fire Department.
- Serves as a member of many safety-related committees.
- Investigates all on-the-job injuries.
- Maintains a reference library of EPA, OSHA, DoD, and local safety-related publications.
- Operates 5 distillation units that recycle alcohol, xylene, and formalin back into AFIP laboratories, in keeping with the DoD directive to reduce pollution.

ACTIVITIES

The Office of Safety Management is represented on numerous AFIP committees:

1. Safety Committee
2. Biosafety Committee
3. Physical Security/Biosurety Committee
4. Quality Assurance Committee
5. Commissioning Committee
6. Synchronization Committee
7. Facilities Committee
8. Space Committee
9. Installation Safety Committee
10. Installation Hazardous Substance Management System (HSMS) Committee
11. Environmental Overwatch Training Subcommittee
12. Installation Plans and Implementation Subcommittee
13. Installation Asbestos Management Team

Our office has sole responsibility for disposal of all of AFIP's hazardous waste to the WRAMC Hazardous Waste Bunker. This includes making many entries in the Hazardous Substance Management System (HSMS), a computerized tracking system mandated by DoD. The system tracks hazardous substances from receiving through disposal (cradle-to-grave).

Our office presents all annual training required by OSHA (Hazardous Communication, Bloodborne Pathogens, Fire Extinguisher Training) to AFIP staff. In compliance with General Farmer's Environmental Compliance Campaign Plan, we conduct Hazardous and Universal Waste Management training.

Our office has been tasked with a significant new mission—the Waste Management Program. This includes the solvent distillation of alcohol, xylene, and formalin; management of Regulated Medical Waste; monitoring of Hazardous (Chemical) Waste; and monitoring of the Silver Recovery Program. AFIP's current recycling program has resulted in great cost savings in recent years. In 2005 we recycled 340 gallons of alcohol, 280 gallons of xylene, and 300 gallons of formalin. It would have cost \$16,660 for new alcohol, \$20,006 for new xylene, and \$7,875 for new formalin, a cost savings in purchase and disposal of \$44,541. Disposal cost is .72 per lb for alcohol, xylene, and formalin for a total cost of:

- \$1,957.00 to dispose of alcohol
- \$1,839.00 to dispose of xylene
- \$1,839.00 to dispose of formalin
- Total disposal cost = \$5,636

Because of new regulatory requirements from BioSurety and BioSafety, the Office of Safety Management has rapidly expanded its area of responsibility. The institute has also recently opened 2 new BSL-3 laboratories. New research protocols are being generated and approved by the BioSafety Committee, and outside inspections have increased because of new regulatory requirements.



Frank J. Roberts
 Quality Assurance Coordinator
 Date of Appointment — 19 January 1993

OFFICE OF QUALITY ASSURANCE

STAFF

Frank J. Roberts, Quality Assurance Coordinator
 Nicole N. Jenkins, Health System Specialist
 (A) Harold Lindmark, Credentials Administrator
 (A) Leslie A. Middleton, AFIP Metrics Administrator
 Estella L. Page, Office Automation Clerk

IMPACT

The Office of Quality Assurance is responsible for the coordination of all quality assurance, risk management, and credentialing and privileging activities at the AFIP, including ensuring compliance with the Institute's College of American Pathologists (CAP) accreditation requirements, providing oversight to the AFIP-sponsored Accreditation Council for Graduate Medical Education (ACGME) activities provided by the Institute, and maintenance and monitoring of the AFIP Metrics Program. We also manage the AFIP/Military/Veterans Affairs Histopathology Quality Assessment Program, Department of Veterans Affairs Systematic External Review of Surgical Cases Program, International Peer Review Program, the Medical Surveillance and Respirator Protection Programs for ARP contract employees, the AFIP Red Cross Volunteer Program, and the AFIP Intern Program. We serve as liaison between the AFIP and the Department of Veterans Affairs Diagnostic Service, maintain the database of subscribers to the *AFIP Letter*, and mail newly published AFIP fascicles to active duty military pathologists.

ACTIVITIES

The Office of Quality Assurance engaged in the following activities in 2005:

- January: assumed responsibility for the AFIP Metrics Program.
- October: assumed responsibility for the AFIP Credential and Privileging Program.
- Coordinated preparation of AFIP's CAP reaccreditation packet and the October 2005 CAP inspection, the most successful inspection since AFIP has been accredited by CAP.
- Conducted annual review and update of AFIP Regulation 40-8, *Veterans Affairs Pathology Review Program*, AFIP Regulation 40-64, *Occupational Health Program*, AFIP Regulation 40-68, *Quality Assurance Administration*, and AFIP Regulation 351-2, *Policies and Procedures for the Administration of Graduate Medical Education*.
- In coordination with the Office of Safety Management, reviewed and updated the Institute's Safety Management and Waste Management Program regulations and drafted the AFIP's Disaster Program.
- Provided senior staff members with statistical data on case accessioning, management, and trends, as requested.
- Managed the external peer review program with the Brazilian Society of Pathology, State of Sao Paulo. On a bimonthly basis, 12-14 cases are sent to the AFIP for in-house review and 6 cases per year are sent to Brazil for their review.
- Managed Histopathology Quality Assessment Program, which helps military and VA medical center departments of pathology maintain their level of diagnostic ability for a variety of pathology specimens. Four pathology cases are posted quarterly on the Web for review and diagnosis, submitted on a rotating basis by AFIP departments. Participants

review the cases and forward an opinion of the diagnosis. Cases are scored by the contributing department/pathologist, and participants receive 1 CME credit for each case diagnosed. During 2005 the program had 497 participants (military 108, VA 278, and 111 civilian) who were awarded over 7,900 hours of CME credit.

- Managed Systematic External Review of Surgical Cases (SERS) Program. VA medical centers forward to AFIP 3 significant surgical pathology cases every other month (18 cases per year). Cases are reviewed by AFIP with comments on significant features. Our office provides the VA Chief Consultant for Diagnostic Services Strategic Health Group a report on participating VA medical centers. During 2005, 103 facilities submitted 1,646 cases to the SERS program.
- Managed AFIP's American Red Cross Volunteer Program by providing orientation and administrative support to volunteers, who provide administrative support to departments, work on education programs and research projects, serve as docents in the National Museum of Health and Medicine or as histopathology technician trainees. In 2005, 46 volunteers provided over 10,000 volunteer hours to the AFIP.
- Managed the AFIP Intern Program that provides the opportunity for high school and college students interested in pursuing a career in medicine and/or science an educational experience at the AFIP. Each student is assigned a mentor who provides hands-on and theoretical experience in the diverse field of laboratory medicine. Each student is assigned a project that must be completed by the end of the program and presented to staff and fellow interns. In 2005, 8 students complete the program.
- Ms. Estella Page serves as the timekeeper/liaison for the 19 VA employees assigned to the AFIP.

GRADUATE MEDICAL EDUCATION COMMITTEE

COMMITTEE MEMBERS

Leslie H. Sobin, MD, SES, Chair
 George P. Lupton, MD, Program Director, Dermatopathology Residency Program
 CDR Craig T. Mallak, Program Director, Forensic Pathology Residency Program
 Susan Abbondanzo, MD, Program Director, Hematopathology Residency Program
 COL Elizabeth Rushing, Program Director, Neuropathology Residency Program
 William Travis, MD, Program Director, Pulmonary Pathology Residency Program
 Nadine S. Aguilera, MD, Hematopathology
 Paul Hartel, MD, Resident/Fellow Representative (July 05-June 06)
 MAJ Michael Royer, Resident/Fellow Representative (July 04-June 05)
 Capt Reggie Zhan, Resident/Fellow Representative (July 04-June 05)
 Nicole L. Jenkins, Office of Quality Assurance, Secretary
 Frank J. Roberts, Designated Institutional Official
 Tammie Winters, Pulmonary Pathology
 Danny L. Urquhart, ARP

The GMEC meets at least quarterly and maintains written minutes documenting activities and fulfillment of responsibilities.

AFIP'S COMMITMENT TO GME

Graduate medical education is the cornerstone of the AFIP's mission. The AFIP acknowledges the correlation between quality graduate medical education, clinical excellence and scientific development. The AFIP is committed to assisting and expanding its GME programs by providing the necessary educational, financial, and human resources to support its GME programs, and ensuring an environment conducive to teaching and higher learning. The program directors and their professional staff accept the greater responsibility for the fellows' professional and personal development wherein they continually seek to improve their own knowledge and skills. Together, the administration, program directors, and participating fellows strive to enhance their professional ability and sustain an environment that nurtures innovation, creativity, and teamwork.

AFIP ACGME ACCREDITED PROGRAMS

The AFIP serves as sponsoring institution for 5 pathology subspecialty programs: Dermatopathology, Forensic Pathology, Hematopathology, Neuropathology, and Selective Pathology (Pulmonary Pathology).

PARTICIPATING HOSPITALS

- Children's Hospital of Philadelphia–Neuropathology
- National Naval Medical Center, Bethesda, Md–Hematopathology
- Office of the Chief Medical Examiner, State of Maryland–Forensic Pathology and Neuropathology
- University of Maryland Medical System, Baltimore–Neuropathology
- WRAMC, Washington, DC–Dermatopathology and Hematopathology

ACTIVITIES

Hematopathology Residency Program Internal Review

The GMEC conducted an internal review of the Hematopathology Residency Program in compliance with ACGME requirements. The inspection team was led by George Lupton, MD, Dermatopathology Program Director. The finding of this review was presented to the first quarter meeting of the GMEC. The team found the Hematopathology Program in compliance with current ACGME Hematopathology Program Requirements, but made a few recommendations to Nadine Aguilera, Hematopathology Program Director to improve her program.

Forensic Pathology Residency Review Committee Site Visit

The Forensic Pathology Residency Program received notification in June from the Residency Review Committee (RRC) that the Program was being placed on probationary accreditation status for 12 months, based on the outcome of its RRC site visit in 2003. The Program will be reevaluated by the RRC in May 2006. In preparation, the Program received an internal review by the GMEC during December 2005. The review team was led by COL Elizabeth Rushing, Neuropathology Program Director. The team's findings will be presented to the GMEC at its 2006 first quarter meeting.

Neuropathology Residency Review Committee (RRC) for Pathology Site Visit

The Neuropathology Residency Program received its RRC site visit on November 15, 2004. The results were presented to the RRC for Pathology spring 2005 meeting. The Program received a finding of Continued Full Accreditation.

Change in Institutional Sponsorship for Forensic Pathology Residency Program

The Forensic Pathology Residency Program requested a change in Institutional sponsorship from the AFIP to the National Capital Consortium (NCC). The Director of the AFIP concurred with the request. The NCC GMEC and Board of Directors approved the transfer request and notified the RRC for Pathology.

Resident Supervision

The GMEC assures that each of AFIP's subspecialty residency programs provides appropriate supervision of its residents in accordance with ACGME's institutional and program requirements. This is done by reviewing each program's letter of accreditation and program goals and objectives, resident exit survey conducted by the GMEC at the end of each academic year, and discussion at GMEC meetings.

Resident Responsibilities

Resident responsibilities are written into each resident's training agreement and the program's goals and objectives. These documents are reviewed annually and updated as needed. Program directors meet with each resident at the beginning of each academic year to review program goals and objectives and resident training agreements. The residents sign their training agreement at this meeting.

Resident Evaluation

Residents are usually evaluated after each rotation. At a minimum, each resident is evaluated every 6 months. Residents are also regularly assessed in each of the 6 general competencies (patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism, and system-based practice), using an evaluation form developed by the GMEC.

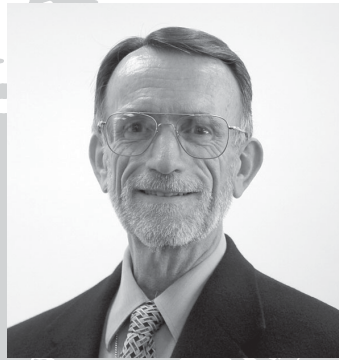
ACGME Duty Hour Requirements

The ACGME duty hour requirements are implemented in our 5 subspecialty programs and are published in AFIP Regulation 351-2, *Policies and Procedures for the Administration of Graduate Medical Education*. The GMEC assesses program compliance with the duty hour requirements through a program letter of accreditation, internal reviews, and discussions at GMEC meetings.

General Competencies

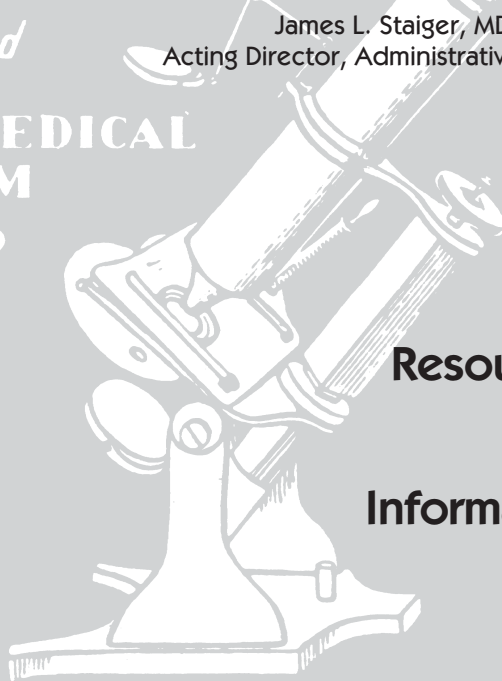
General competencies have been introduced into all AFIP residency programs' curricula. The programs are currently at various stages in the teaching and evaluation of these competencies. The GMEC is working with program directors to ensure that general competencies are fully implemented in all our programs. The general competencies are an open item at our GMEC meetings. During internal reviews, detailed information is reviewed on the programs' implementation and evaluation of the general competencies.

DIRECTORATE OF ADMINISTRATIVE SERVICES

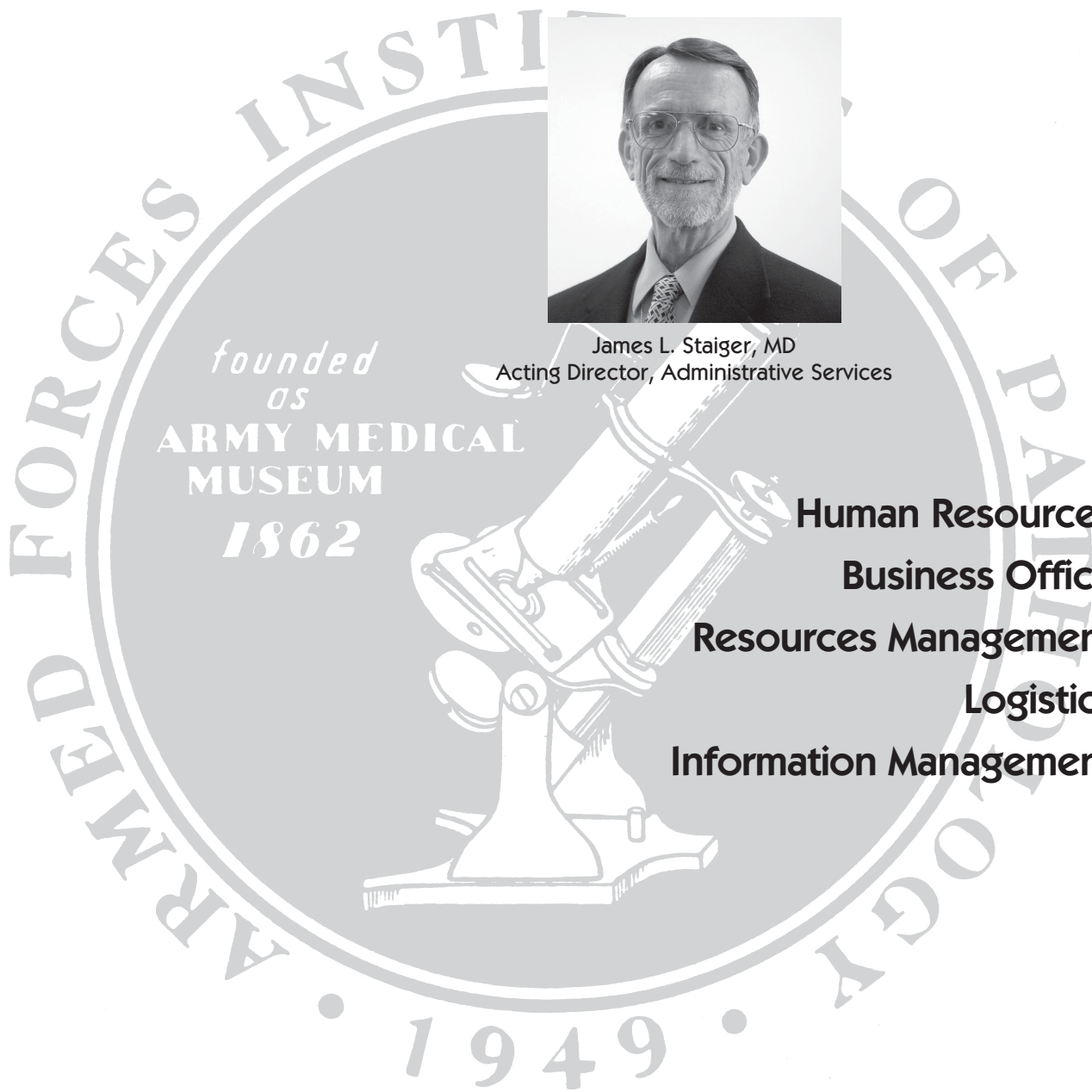


James L. Staiger, MD
Acting Director, Administrative Services

*founded
as*
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MUSEUM**
1862



Human Resources
Business Office
Resources Management
Logistics
Information Management





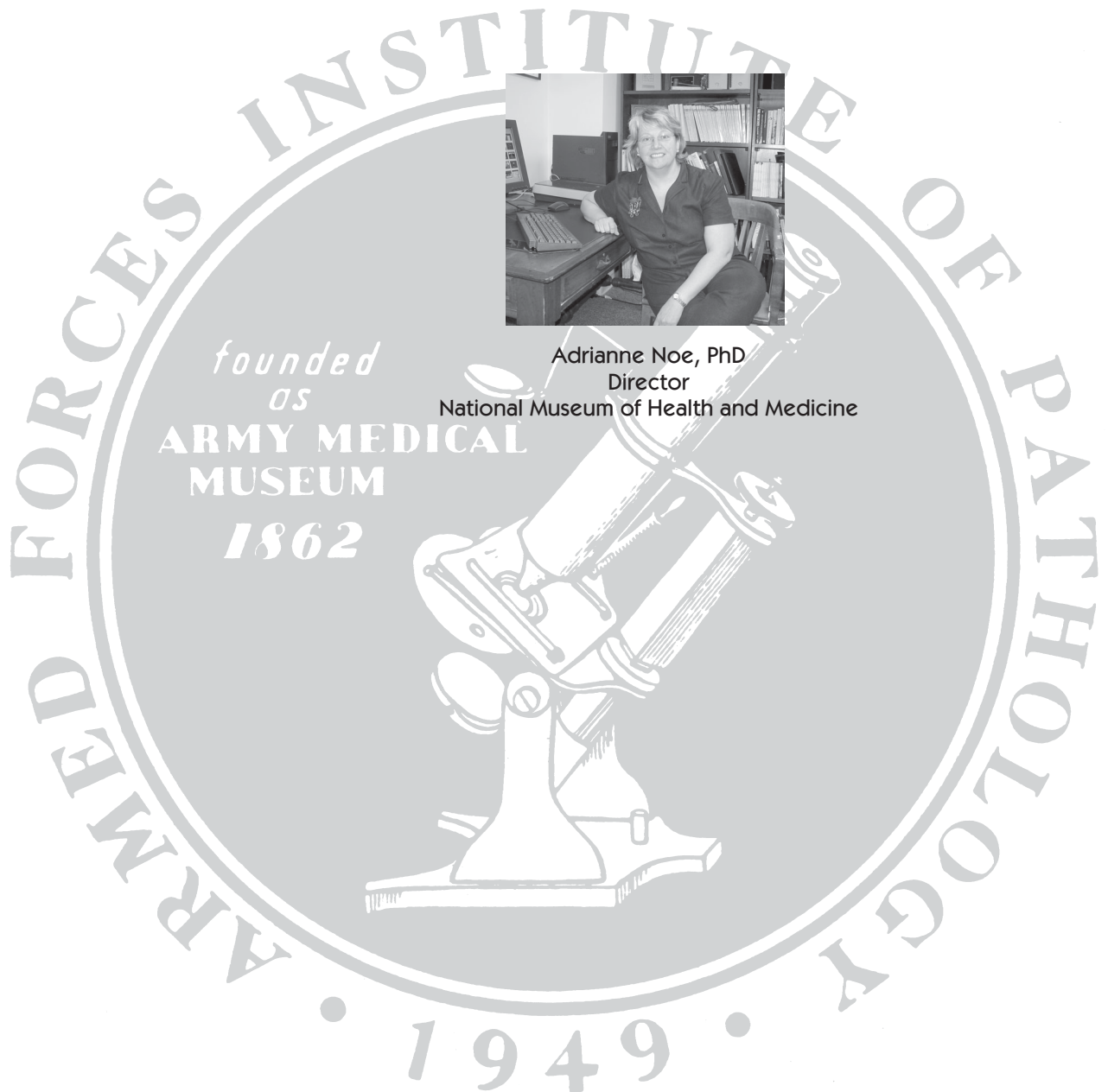
James Staiger, MD
Acting Director, Administrative Services
Date of Appointment — 7 December 2005

Director of Administrative Services	Charles Pemble, Col, USAF, MS/James L. Staiger, MD
Support Service Specialist	Cheryl D. Colbert
Human Resources	James L. Staiger, MD
Personnel Management Division	Wendy Baker
Military Personnel Division	Edward E. Davis, LT, MSC, USN
Civilian Personnel Division	Vaughany M. Casey
Logistics Department	Lonnie Winley
	Acting--Thwana Johnson, CPT, MS, USA
Materiel Acquisition Division	Lanelle Chisolm
Facilities & Service	Cornelius L. Reeder
Facilities Maintenance Branch	Allen Harris
Environmental Services	Gary Brown
Property Management Division	Thwana Johnson, CPT, MS, USA
Property Branch	Rudolph Wynn
Medical Maintenance Branch	Willie McDaniel
Logistics Support Division	Charles Harris
HSMS Branch	Christopher Jordan
Receiving & Distribution Branch	Diedra Carey
Security Division & Reception Desk	Scott G. Gagnon
Information Management	Paul Lavan, LTC, MS, USA
Automation Management Service	Vacant
Developers	Guy Peay
User Support	Edwana Jones
Network Support/Tel	David A. Hackney
Photography	Vacant
Records Forms Management	Bonnie Short
Digital Imaging Center	Douglas Landry
Exhibits Production	Larry Claiborne
Under Director's Section (Effective 15 November 2005)	
Business Office	Mike F. Nola, PhD
Resources Management	Kevin P. Monahan
Financial Division	Katie L. Askew

NATIONAL MUSEUM OF HEALTH AND MEDICINE



Adrienne Noe, PhD
Director
National Museum of Health and Medicine





Adrienne Noe, PhD
Director
Date of Appointment—September 1995

NATIONAL MUSEUM OF HEALTH AND MEDICINE, AFIP

ORGANIZATION

The Museum is organized into the Office of the Director, Public Programs and Exhibitions, and Collections.

IMPACT

The NMHM promotes the understanding of medicine, past, present, and future, with a special emphasis on American military medicine. It inspires interest in personal and public health. As the nation's museum of health and medicine since 1862, we aggressively identify, collect, and preserve important resources to achieve a broad agenda of innovative exhibitions, educational programs, and scientific, historical and medical investigations.

To achieve this, we promote the responsible use of the nation's National Historic Landmark collection by continuing to catalog the collections, to record detailed information about the holdings and to edit record to make databases available for the Internet, which allow the collection to be more accessible to researchers. We cultivate ties with professional medical societies and with the Department of Defense to assist in collecting artifacts significant to the history of the practice of medicine and the evolution of medical technology, emphasizing military medicine. Finally, we collect, preserve and interpret modern examples of significant medical technology to document the history of the practice of military medicine and the evolution of medical technology to ensure the continued development of the National Museum of Health and Medicine, AFIP, as a Department of Defense asset and as a national and international resource for the military medical community, professional health care workers and the general public.

In so doing, we emphasize the Museum's focus on critical public and military health issues, the importance of the Museum as a bridge between biomedicine and the general public, the Museum's role in helping to recruit the health professionals of tomorrow, and the Museum's research programs in medical medicine, medical imaging, and other areas.

OFFICE OF THE DIRECTOR

STAFF

- Adrienne Noe, PhD, Director
- Donna R. White, Administrator
- Steven Solomon, Public Affairs Officer
- (A) Courtney MacGregor, Public Affairs Specialist
- Theresa Butler, Staff Assistant
- Melba Stewart, Special Events and Facilities
- Shelly Currie, Visitor Services Representative
- (D) Von Keith Brooks, Visitor Services Representative

(D) Andre Upshur, Visitor Services Representative
 (A) Luis A. Pineda, Visitor Services Representative
 (A) David Martinez, Visitor Services Representative
 (A/D) Latrice Thorpe, Visitor Services Representative
 Elizabeth C. Lockett, Collections Specialist, HDAC
 William F. Discher, Imaging Technician, HDAC

The Office of the Director oversees the general activities and provides guidance for all aspects of the Museum and provides policy, technical, and scientific direction. It directs all activities for the site, facility, and programs of the Museum as its activities evolve. Activities handled within the office are external and internal relations, governmental affairs, press and public relations, and institutional development. The office works with print and broadcast media, congressional offices, and local, national, and community organizations to encourage contract with the coverage of AFIP's National Museum of Health and Medicine. The Administrative support staff continues to improve the quality of support provided to the departments of the Museum. This administrative group provides a variety of management services essential to the operation of the Museum in the areas of budgeting, manpower/personnel, contract administration, and organizational management. The office provides general supervision of the Office of Public Affairs, the Department of Programs and Exhibitions, and the Department of Collections and Research. The office of the Director communicates and coordinates with the American Registry of Pathology (PL94-361) and numerous public and private organizations for institutional development. The Director of the National Museum of Health and Medicine, is a member of the AFIP Executive Committee. As in past years, the Museum cultivates working relationships with international organizations of similar interest.

Gift Shop

The Gift Shop, operated via a cooperative enterprise with the ARP, offers a variety of merchandise to visitors of all ages and educational interests. The Gift Shop contributes to the advance marketing efforts of the Museum and Institute, extends the effectiveness of the Museum's programs and exhibitions by selling objects related to Museum activities, and generates revenue. Each object has a distinct connection with the Museum's mission, exhibits, or programs.

Facilities and Special Events

The National Museum of Health and Medicine's facilities and special events staff, in conjunction with the AFIP Directorate of Logistics Department, support and offer consultation to the NMHM in the following areas: physical security, storage movement, maintenance, repair and accountability of materials, housekeeping, exhibit upkeep and maintenance, waste collection and disposal, notification to the Provost Marshal of visitors participating in special events and media filming. This notification is a part of the installation's ongoing security process. This department serves as a NMHM liaison with the AFIP Office of Safety Management. It also maintains an inventory of all hazardous chemicals located within the NMHM. The department serves as a member of many safety-related committees and also investigates all facilities safety issues concerning staff and visitors.

The Facilities Department assisted in assembling and disassembling temporary exhibits and prepared maintenance programs the following exhibits: The National History Day Program, "Penelope: The World's First Autonomous, Vision-guided, Intelligent, Robotic Surgical Instrument Server," "Healthy Heart," and "Body Image/Body Essence: Viewing Ovarian Cancer through the Art of Sculpture."

Special Events were successful in providing support to the AFIP, WRAMC and the surrounding community by hosting and scheduling annual events such as Ash Lecture and WRAMC continuing education courses such as: Medical Effects of Ionization Radiation, Medical Management of Chemical and Biological Casualties and Emergency Medical Technician courses. In 2005, the event staff coordinated logistical support for a combined lecture participation of 3,646 people. The event staff also provided logistical assistance for NMHM-sponsored events such as monthly health fairs, docent meetings, training sessions and other educational programs.

Standard Operating Procedures for Museum meetings and receptions were generated and provided to the event planners or points of contact for events. The office staffs and secures each event with Visitor Service Representatives. We also offer each event planner and/or point of contact a list of specialty caterers familiar with the policy and procedures of the NMHM. The

Special Events Branch also routinely assists with audio-visual needs of instructors, guest speakers, and event presenters.

Public Affairs

During 2005, the Museum's Public Affairs Office continued marketing efforts and strengthened relationships within the business, museum, and tourism communities to increase awareness of the Museum throughout the Washington, DC metropolitan area, and among tourism and military audiences.

Through this office the Museum maintains a relationship and cultivates ties with as many area grassroots and cultural-based organizations as possible in order to better position itself as a significant historical community, and cultural attraction. The Museum remained an active member of Cultural Tourism DC, a grassroots, non-profit coalition of more than 140 arts, heritage, cultural, and community organizations throughout Washington, DC, that works with a wide array of partners in the public and private sectors to make all of Washington, DC a world-class destination for cultural tourism. Through the CTDC, the Museum received prominent recognition in its publication providing an inventory of all DC cultural attractions by neighborhood and theme and was featured in its new "Discover the Heart of Washington" brochure. The Museum benefits from other efforts organized through the CTDC, such as collaborative marketing materials, a joint product-licensing program, and a neighborhood heritage trail tour along the Georgia Avenue corridor.

In addition to membership in the DC-based Cultural Tourism DC, the Museum also reaches into the State of Maryland through its membership in the Conference and Visitors Bureau of Montgomery County, Md. The Museum is located just a few blocks from Silver Spring, in Montgomery County, which attracts nearly 2 million visitors annually.

The Museum remained a designated site on the Civil War Discovery Trail, which is one of slightly more than a dozen National Millennium Trails in the United States. As a result, the Museum received recognition in marketing and promotional materials produced by the Civil War Trust at no cost.

The Museum responded throughout the year to requests for information or assistance received by email, telephone, and mail from the general public.

Marketing

Working closely with the Museum's Public Programming Department, Public Affairs placed an emphasis on promoting programs and workshops to the local community to raise awareness of the Museum's educational offerings and to increase program attendance.

Specially promoted within the internal WRAMC and AFIP community, as well as to the public, were the monthly health fairs held at the Museum, including National Glaucoma Awareness Month, American Heart Month, National Kidney Month, Foot Health Awareness Month, National Blood Pressure Education Month, and National Safety Month. Public Affairs also assisted with and promoted the Museum's annual Brain Awareness Week program, a murder mystery forensics workshop, a book signing for the author of *Soldier Dead* that was covered by *The Washington Post* and WTOP-AM, a DNA and forensic evidence program, and the screening of the film "Battle Circus."

In addition to handling publicity and media coverage, Public Affairs also was responsible for coordinating the Museum's annual participation in National History Day, a program for middle and high school students across the country; and making arrangements for a museum display to be staffed at St. Elizabeth's Hospital for a special event celebrating 150 years of service anniversary.

A special effort was made during 2005 to promote "Body Image/Body Essence: Viewing Ovarian Cancer Through the Art of Sculpture," an exhibit of 15 sculptures by Massachusetts artist John Magnan that he created as a reaction to his wife's 1999 diagnosis with Stage III ovarian cancer. Described as an exhibit that "explores and highlights the process of overcoming ovarian cancer," there was significant coverage of the exhibit, including a lengthy review in the *Journal of the American Medical Association* as well as coverage in *Washington Blade*, Maryland Public Television, and by the exhibit co-sponsor, arranged by Public Affairs, *Washington Woman* magazine.

Public Affairs also handled the schedules and designed ads for Comprint Military Publications, *Washington Woman*, *The Washington Post*, *Washington City Paper*, *Guest Informant*, and *Washington DC Quick Guide* in 2005.

Also, Public Affairs led efforts to explore collaboration with other organizations, leading to

successfully partnering with DC's Marian Koshland Science Museum on a forensics program and the NIH's National Institute of General Medical Sciences by assisting them with their publication "Inside the Cell."

Impact

The Museum continued to produce and distribute more than one news release a month for the media in 2005, resulting in measurable media exposure. More than 500 stories and news brief items were printed about exhibits, loans, accessions, events, programs, and health fairs in 2005, in publications with a combined circulation of more than 100 million. This coverage appeared in local, national, and international publications, as well as on TV and radio stations, the most notable being articles in *The Washington Post*, *The Washington Times*, *Washington City Paper*, *Washington Informer*, *The Richmond Times-Dispatch*, *The Dallas Morning News*, and *JAMA*, as well as a feature broadcast by National Public Radio's "All Things Considered."

Media Coverage

An exhibit at the National Museum of Health and Medicine in Washington, DC is offering views inside the human body never before seen. These images from a new book, *The Architecture and Design of Man and Woman*, are not photographs or paintings. They are computer-built visualizations of data imaged from the bodies of a man and woman who died in the early 1990s, and who donated their corpses to medical science. Sixty prints from the book by photo-journalist Alexander Tsiris, as well as a video made by his company, Anatomical Travelogue, are on display at the National Museum of Health and Medicine. The show is called "The Human Body Revealed." Elizabeth Lockett is the curator. "The bodies were actually frozen in a large block of blue goo, and they were ground, literally ground, like [in] a mill," she said.

- *Voice of America*

The bronze helmet and shield—a single sculpture called Warrior—is Mary Magnan's favorite among the 15 works her husband, artist John Magnan, created in response to her diagnosis and treatment for advanced ovarian cancer. John fashioned the armor from castings of Mary's hairless skull and torso, taken while she was receiving chemotherapy. "At first I was reluctant to put this work on display," Mary said. "I felt so exposed." But visitors to John's New Bedford, Mass, studio convinced her the work honors the strength women muster to confront a life-threatening disease. Now, Warrior and other works in several media constitute a traveling exhibit, Body Image/Body Essence, on view through March 31, 2006, at the National Museum of Health and Medicine in Washington, DC. By highlighting the experiences of women and families dealing with ovarian cancer, the Magnans hope to raise awareness of the disease, prompting earlier detection and treatment.

- *Journal of the American Medical Association*

Want to feel the inside of a stomach? View a smoker's lung? The National Museum of Health and Medicine enables tourists to see and feel the effects of disease on the human body and documents the shifting course of the history of medicine. Founded in 1862, the institution is at its ninth location, on the campus of the Walter Reed Army Medical Center. The setting is appropriate, since the Museum traces changes in the practice of medicine during various wars. Its collection of artifacts includes the bullet that killed Abraham Lincoln and Paul Revere's dental equipment (bet you didn't know that in addition to being a silversmith, Revere was a dentist)."

- *TIME Magazine*

"Medicine is important to the military and military medicine is important to the nation," the director of the National Museum of Health and Medicine said in describing how she and her staff go about collecting and organizing thousands of items for possible exhibition. "We need the raw material," Adrienne Noe said of the charge to the Museum from its founding in 1862 during the American Civil War. "Sometimes people will approach us" about donating something, but the Museum also does "prospective collecting. We want that object [such as the improved self-clotting bandages being used in Afghanistan or Iraq]" because it was using military technology or it was a prototype in its field (such as the Museum's extensive collection of microscopes dating to the 17th century). The Museum's collection has been designated as National Historic Landmark by the Department of the Interior.

- *Association of the U.S. Army News*

Founded in 1862 to document the effects of war wounds and disease on the human body, the Museum displays everything from a large human hairball to skull fragments collected after Abraham Lincoln's assassination. But some of the Museum's most unsettling stuff is in storage — including thousands of amputated body parts from more than 6,000 soldiers wounded

during the Civil War. The body parts were sent to Washington on the orders of Surgeon General William Hammond, who had told medical officers to send interesting specimens from the battlefield for research and possible display. Every body part in the Museum's collection — which includes larynxes, hearts, bones and brains — has historical significance. Some were saved to illustrate the disease or wound that afflicted them, others the medical procedure used to remove them.

- *National Public Radio, All Things Considered*

Alan Hawk, a Museum collections manager, turns the key on a big light blue locker, opens a drawer and reveals some of history's treasures: sections of bullet-pierced vertebrae from both President James Garfield and Lincoln assassin John Wilkes Booth. Next to them is a little jar containing President Dwight Eisenhower's gallstones. And in a nearby cabinet is the full skeleton of Able, the first monkey sent into space. The gems are among 25 million artifacts held by the National Museum of Health and Medicine in Washington. This is no ordinary Museum. After all, its newsletter is called *Flesh and Bones*. On the campus of Walter Reed Army Medical Center, the facility was established in 1862 by Surgeon General William Hammond to collect "specimens of morbid anatomy ... together with projectiles and foreign bodies removed." Today, the Museum and two warehouses hold 5,000 skeletal specimens, 10,000 preserved organs and 12,000 microscopes, surgical instruments and other objects. It's all there to document the history and practice of medicine since the Civil War. It may seem a bit ghoulish. But this is serious business for the museum staff... The museum is a unit of the Armed Forces Institute of Pathology.

- *The Dallas Morning News*

In 2005 the Museum's staff assisted, met with, and/or was interviewed by media representatives for stories or documentaries on:

BBC

Bloomberg News

Canadian Broadcast Corp

Discovery Health

Fox 5 News

Grenada TV

History Channel

Maryland Public TV

NewsHour with Jim Lehrer

MTV News

National Geographic TV

NBC News

Oregon Public Broadcasting

PBS/Nova

Reuters TV

Swedish Broadcasting Corp.

VOA TV News

WRC-TV (Washington, D.C.) NBC 4

WTTG-TV (Washington, D.C.) Fox 5

WUSA-TV (Washington, D.C.) CBS 9

Also, in 2005 the Museum's Public Affairs Office facilitated use of 1918 flu images in its Otis Historical Archives for a number of broadcast and print media, including:

Adbusters

American Public Health Association's "Influenza and the 2004 Flu Vaccine Shortage"

Atlanta Journal-Constitution

Associated Press

Awareness Publishing Group

CBS Evening News

CNN

CQ Researcher

Elsevier Limited's (Mosby) Rapid Reference Series - "Influenza"

Feature Story News

Foreign Policy Association

Fox 5

Galveston City Daily News
GEO Magazine
Government Executive magazine
Granada TV
Johns Hopkins School of Public Health
Maryland Medicine magazine
Miami Herald's "Health and Fitness" section
National Center for Injury Prevention and Control – CDC
National Institute of General Medical Services
NBC News
NBC Nightly News with Brian Williams
NBC Today Show
NTV (Japanese Public TV)
Nurse Week
Polish TVP3
Revolution: The Journal for RNs and Patient Advocacy
SCIENCE WEB, INC.
Star TV
Swiss Institute of Bioinformatics
Tasmania Department of Education
The Examiner
The (Fredericksburg, Va.) Free Star
The Oklahoman
USA Today
Vanity Fair
Washington Post (multiple times)
Watch Tower's "Awake!"
WGBH/Nova

Museum Newsletter

The Museum's newsletter, *Flesh and Bones*, was published during 2005 with an expanded circulation. In addition to being distributed internally to the departments of the AFIP, the newsletter was sent electronically or mailed to the Museum's mailing list, media, schools, libraries, and visitors who have requested to receive information by mail. It contains articles that are researched and written by the Museum staff, about new exhibits, special programs, recently acquired artifacts, loans to other museums, etc.

The World Wide Web Site

The Museum Public Affairs Office was principally involved in expanding content on the Museum web site to include information about new exhibits, such as "A Healthy Heart," "Body Image/Body Essence," and "Penelope: The World's First Autonomous, Vision-guided, Intelligent, Robotic Surgical Instrument Server." In addition, in its role as website content manager, the Public Affairs Office works with its Webmaster to post information about program events, visitor and media comments, and accomplishments of the Museum's staff, called Staff on the Go. The Museum also continued to pursue opportunities to be added to other museum and tourism websites.

According to the website's traffic report provided by Web Trends, the website is averaging more than 12,000 hits daily compared to 8,700 hits daily in 2004, and in 2005 had more than 812,754 unique visitors who spent more than 8 minutes during each visit to the website. The Museum ensures accurate and timely information is provided to online web site information resources, and is currently linked from 141 other sites.

Professional Development/Media Contacts

To reach members of the media, Public Affairs traveled to off-site meetings and programs about or at *Maryland Life Magazine*, *The Baltimore Sun*, *The Washington Post*, WBAL-TV (Baltimore Channel 11), WCBM-AM (Baltimore 680), WJZ-TV (Baltimore Channel 13), WLZL-FM (Washington, DC 99.1), WTMD-FM (Baltimore 89.7), WTTG-TV (Washington, DC Channel 5). A member of Public Affairs completed an offsite workshop on Adobe Photoshop, and attended programs or meetings at the University of Maryland Anatomy Lab, the Textile Museum, and the Dana Foundation.

PUBLIC PROGRAMS AND EXHIBITIONS

The division directs and coordinates operational and interpretive components of the Museum. This includes administration, exhibitions, public programs, educational tours, facilities use, and related activities. Division staff worked with governmental agencies, professional associations, museums, and individuals to develop interpretive strategies that promote greater public awareness of contemporary and historical perspectives on disease, public health, and health education.

STAFF

(D) James Carey Crane, Exhibits Manager
Janet Melson Burns, MA, Public Programs Coordinator
Andrea K. Schierkolk, BA, Tour Program Manager
(A/D) Jana Justin, Exhibits Specialist
(A) William Discher, Exhibits Specialist

Docents

Sheila Anderson, BS; Solomon E. Barr, MD; Ed Beeman, MD; Catherine Bonomo, BS; Edward Byrde, BS Ph; James DePersis; Regina Hunt, MEE; Marianne Jessee-Solfronk, MS; Brenda Kiessling, MD; Pam Kincheloe, BSN, JD; Lew E. Larson, BSEE; Richard Mulvaney, MD; Vincent G. Petrella, MD; Anne Pollin; Enid Rosen, BS; Marjorie D. Shaw, BA, PhD; Shen Sung, MD, S. Stephen Schiaffino, PhD; Carolyn Whittenberg, MSN

Volunteers

Pauline E. Rabin, MD; S. Stephen Schiaffino, PhD

Visitor Services

The overall attendance in 2005 increased by 21 % over last year. The number of guided tours increased in 2005 by 60%, along with the attendance for these tours by 13%. The number of unguided tours increased by 42%, with visitors participating in unguided tours increasing by 41%. There were also increases in numbers of individuals attending Public Programs by 102% and Special Events by 41%.

Programs

Programming in conjunction with the exhibits "To Bind up the Nation's Wounds, Battlefield Surgery 101: From the Civil War to Vietnam," and "Blood, Sweat and Saline: Combat Medicine in the Korean Conflict," as well as military medicine included a lecture and book signing by author Michael Sledge in May and a 2-day screening of the film "Battle Circus" in June.

Michael Sledge provided a lecture and book-signing on his new release, *Soldier Dead*, a book that explores the complicated physical, social, religious, economic, and political issues concerning the remains of men and women who died while serving this country during war and times of conflicts abroad. His discussion revealed the shifts that have occurred in the process of recovery, identification, return, and burial, as well as trace the ways in which this process has evolved over time.

Alan Hawk, manager of Historical Collections, provided introductions for both parts of the 2-day screening of "Battle Circus" in June. This 1953 film is based on a US Army doctor's experience in a mobile surgical hospital during the Korean War. Mr. Hawk began his discussions of the film by providing a brief history of the movement of surgery being performed in the open battlefield during the Civil War to the arrival of the mobile surgical hospital for operating on the wounded soldier inside of a more controlled, sterile environment.

The film "Behind the Lines," released in 1997, was presented in 2 parts. Jeff Reznick, PhD, provided introductions to both parts of the screening and highlighted important themes in the story. This film is based on the work of Dr. William Rivers, a British Army psychiatrist, who worked with shell-shocked soldiers during World War I. Set in a British Army hospital in Craiglockart, Scotland, in 1917, the film tells a story that was based on true events.

"Learning about Forensics III: A Museum Murder Mystery," the third in a series of forensic programs, was presented in October. This day-long program, offered in 2 parts, was designed to provide the audience opportunities to see what real forensic scientists do to gather, analyze, and/or interpret forensic materials to help identify the remains of a dead person or to help solve a mystery. In the first part of the program, participants learned specifically about forensic anthropology and worked in teams to examine objects displayed in the "Human Body, Human Being" exhibit, as well as some replicated skeletal remains to determine the identity of a missing person. The second part of the program gave the participants opportunities actually to solve "a murder mystery." Lenore Barbian, PhD, acting curator of Anatomical Collections,

provided an introduction to the second part of the program by staging the scene and identifying the murder victim and the suspects. Working in teams again, the audience viewed the crime scene (in a contained area on the Museum floor), looked at collected evidence, and examined the evidence at activity stations located throughout the exhibit floor. Based on the testing done at the blood typing, DNA extraction, fingerprint identification, chromatography (ink analysis) and analysis of unknown substances, fiber and hair stations, the participants were able to identify the killer and solve the murder mystery.

Collaborations

The NMHM collaborated for a fourth year with Dana Alliance for Brain Initiatives in a seven-day celebration of "Brain Awareness Week 2005" in March and 3 days in May. Students from Washington, DC, Maryland and Virginia participated in lectures, and activities with local neuroscientists to see, touch, and otherwise learn about the human brain. Neuroscientists, medical professionals and technicians, and educators from the California Institute of Technology, Rutgers University, the National Institutes of Health, Georgetown University, Howard University, George Mason University's Krasnow Institute, The Lynn A. Chiaverotti Fund, University of Nebraska's Brains Rule Program, the WRAMC and Veterans Brain Injury Center, and WRAMC's Army Audiology and Speech Center partnered with NMHM and the Dana to present lectures and hands-on activities for elementary, middle, and high school students. Presenters included: Carol Trippitelli, MD (local psychiatrist); John Allman, PhD (Cal Tech); Barry R. Komisaruk, PhD (Rutgers); Jane Acri, PhD, Allison Chausmer, David Thomas, PhD, Gaya Dowling, PhD, Charyl Kassed, PhD, Catherine Sasek, PhD, and Anna Staton, PhD (National Institute on Drug Abuse/NIH); Roger Sorenson, PhD, and Dennis A. Twombly, PhD (National Institute on Alcohol Abuse and Alcoholism/NIH); Alyssa Picchini, Allison Bennett, Naomi Raymundo, Sonya Steele, Elizabeth Stillman, Dylan Wint, and Ezat Luba Yomtovian (National Institute of Mental Health/NIH); Richard Benson, Paul Girolami, Nancy Hart, Michelle Jones, Andrea Sawczuk, DDS, PhD, Margo Warren, and Amy Williams (National Institute of Neurological Disorders and Stroke/NIH); Sandra Acquah, Mohommad N. Akhtar, MD, Deniece Clifford, Martha I. Davila-Garcia, PhD, Toye Doggett, Bruk Getachew, MS, Sheketha Hauser, Sara Kalifa, Kebreten F. Manaye, MD, Jahn O'Neil, Yousef Tizabi, PhD, Eric Walters, PhD, and Kimberly Walton, PhD (Howard University); 1LT Kara Delaney, Gerald Schuchman, MD, 1LT Elizabeth Somrack, Joan Tendrich, MA, (Walter Reed Army Medical Center (Speech)); Alice Marie Stevens (Walter Reed Army Medical Center Defense and Veterans Brain Injury Center; Gary R. Chiaverotti (Lynn Foundation); and Karen Graham of the Charles Dana Alliance for Brain Initiatives, Program Sponsor. Archie Fobbs of the Neuroanatomical Collection provided lectures and demonstrations that highlighted various brain functions or disturbances. Over 800 students participated in this 10-day program.

2005 was the sixth year that the Museum collaborated with Health Pact, Incorporated, a local nonprofit entity that assists community organizations by securing medical personnel, community groups, and medical supplies to perform certain medical screenings at health fairs, to present "National Health Awareness Kickoff." This is a series of programs held the first Saturday of each month to acknowledge and explore certain health awareness issues. Medical professionals provided in-depth information on the selected health issue of the month and provided free health screenings for Museum visitors interested in the state of their health. This program continues to be an important part of the Museum's ongoing programs.

The Museum partnered with the Prevention of Blindness Society of the Metropolitan Area to provide free glaucoma screenings, as well as to distribute information about the disease in January; and Arnold S. Ravick, MD and Lawrence G. Lazar of Capital Podiatry Associates, both members of American Podiatric Medical Association, provided free foot screenings for health fair participants in April through the Health Pact, Inc., program.

In November, the National Museum of Health and Medicine collaborated with the Koshland Science Center to present the two-part program "Clue: Solve the Mystery with DNA and Forensic Evidence." Part I of the program, held at the Koshland Science Center, featured Dr. Bruce Budowle, senior scientist with the Forensic Science Laboratory of the Federal Bureau of Investigation and Dr. Jennifer Mnookin, professor at University of California at Los Angeles School of Law. These two forensic experts presented overviews of historical forensic technologies and procedures, as well as the challenges of current evidence collection and analysis. Part II of the program was held at the National Museum of Health and Medicine. This part, entitled "In the Lab: Using Forensic Clues to Find Answers," continued the examination of forensic evidence that began at the Koshland Science Center. The participants who attended Part I visited lab stations to learn how forensic anthropologists gather, analyze, and interpret forensic evidence. Lenore Barbian, PhD, assistant curator of the Museum's anatomical collec-

tion, featured a short lecture to provide background information needed to understand the focus of four lab stations where forensic scientists provided actual hands-on activities that participants took part in. At the stations, Marilyn London, MA, a forensic consultant to Rhode Island's Office of the Medical Examiners and a lecturer in the Department of Anthropology at the University of Maryland, explored the issue of Race Assessment; Brian Spatola, MA, former mortuary supervisor for the Washington, DC Office of the Chief Medical Examiner and a member of the Federal Disaster Mortuary Operational Response Team (Region III) who currently works at the Smithsonian Institution's Museum Support Center, demonstrated how to distinguish forensic remains from non-forensic/non-human remains; Allison Willcox, MA, a biological anthropologist and a doctoral candidate at the University of Pennsylvania, addressed forensic taphonomy, the study of the processes that affect the decomposition, dispersal, and burial of human remains; and Dr. Barbian discussed pathology and trauma.

Ongoing Programs

The Museum continued to offer guided tours on the weekend to walk-in visitors on the second and fourth Saturday of each month.

Tour/Docent Program

In addition to general tours, which introduce visitors to the highlights of the exhibition galleries, the following Curriculum Connection tours were offered during 2005: "Human Body, Human Being" and "To Bind up the Nation's Wounds: Medicine During the Civil War." The "Forensics Mystery" workshops continue to be popular hands-on activities for students, families, and adults.

Docents, Museum staff, and AFIP staff benefited from educational presentations made at monthly docent meetings. William Discher, imaging technician in the Human Developmental Anatomy Center, presented a lecture on "The History of 3-D Modeling and Imaging in the Human Developmental Anatomy Center" in January. In February a documentary of the traveling exhibition, "Body Worlds: The Anatomical Exhibition of Real Human Bodies" was screened to give docents greater insight into the development of this extraordinary exhibit created and developed by Gunther von Hagens who developed the plastination process used to preserve body tissue. Jiwon Kim, of the Exhibition Education department at the National Library of Medicine presented a lecture on the exhibit (held at NLM), "Changing the Face of Medicine" which looks at the history of American female physicians in March. In April Dale Smith, PhD, professor and chairman of the Department of Medical History at the Uniform Services University of Health Sciences, presented "Battlefield Medicine," a lecture on the history of battlefield surgery as presented in the exhibit, "Battlefield Surgery 101: From the Civil War to Vietnam" on display at NMHM. Ronn S. Wade, Director of the Maryland State Anatomy Board, presented a tour of the University of Maryland, Baltimore, School of Medicine, including the school's morgue and plastination lab in May. In September Lenore Barbian, PhD, assistant curator of Anatomical Collections, presented a talk on the new "Walt Whitman" exhibit. James Bjork, PhD, of the National Institute on Alcohol Abuse and Alcoholism at the National Institutes of Health, lectured on "How Does the Brain Change as We Age?" in October. Mike Rhode, chief archivist of the NMHM presented a lecture on "The Rise and Fall of the Army Medical Museum and Library."

The training of new volunteers for the docent program that began in the fall of 2004 ended in the January of 2005. Elizabeth C. Lockett, imaging specialist in the Human Developmental Anatomy Center, provided a tour of HDAC's collections. Ms. Lockett also provided training on the Museum's permanent exhibit, "From a Single Cell" and the temporary exhibit entitled, "Human Body Revealed," which showcased images from the book "The Architecture and Design of Man and Woman" by Alexander Tsiras. Janet Burns provided a tour of the exhibit, "The Visible Skeleton," which presented works by Laura Ferguson, a New York artist who used her illness, scoliosis, as a topic for her art. The new docents in training were Solomon E. Barr, MD; Brenda Kiessling, MD; Pamela Kincheloe, RN, BSN, JD; Lewis Larson, BSEE; Vincent Petrella, MD; Marjorie D. Shaw, PhD; and Sheila Anderson, BS, completed the training and joined the docent program in January.

EXHIBITS

Several new exhibitions opened in 2005:

"Penelope: The World's First Autonomous, Vision-guided, Intelligent, Robotic Surgical Instrument Server." Penelope is a robotic scrub assistant with speech recognition, machine vision, and robotic arm path planning and targeting. She was developed by Robotic Surgical

Tech, Inc., a Columbia University spin-out enterprise. Michael R. Treat, MD, president of the Penelope Team believes that Penelope has the potential to save thousands of dollars each year and free up valuable hospital operating room staff for other tasks.

“Body Image/Body Essence: Viewing Ovarian Cancer through the Art of Sculpture.” The exhibit explores and highlights the process of overcoming ovarian cancer. The exhibit includes 15 sculptures by Massachusetts artist John Magnan. The collection of sculpture represents the challenges women and their families face when diagnosed with ovarian cancer. The exhibit addresses issues such as self-image, hair loss, chemotherapy, and recovery and explores the conflict between “who I am” and “what I look like.”

“A Healthy Heart” is drawn from the book *The Invision Guide to a Healthy Heart* by Alexander Tsiaras. The exhibit, which examines human anatomy for both the scientific and lay communities, is the third at the Museum that is based on a series of new publications by Tsiaras, who uses full body scans, ultra powerful microscopes and molecular modeling tools to accentuate the body’s intricate construction and isolates structures in novel ways.

“Walt Whitman’s Soldiers” is an online exhibit. The Museum holds several photos and unique anatomical specimens that open a window onto Walt Whitman’s life and his experiences in Washington’s Civil War hospitals. These images and artifacts connect us not only to Whitman, who lived and worked in Washington from 1863 to 1873, but also to the soldiers he nursed and to the makeshift institutions where, as Whitman wrote, “every cot had its history.” Inspired by his witness of suffering by soldiers and of caregiving by nurses and doctors, Whitman’s writings from this tumultuous period stand among his greatest.

“Closing in on a Killer: Scientists Unlock Clues to the Spanish Influenza Virus.” A 1997 temporary exhibit on the 1918 influenza pandemic and efforts by Armed Forces Institute of Pathology (AFIP) pathologist Dr. Jeffrey Taubenberger to recreate the genetic structure of the 1918 influenza virus are featured in this virtual exhibit. Today, Dr. Taubenberger’s work on 1918 influenza is made possible through his use of the AFIP’s Tissue Repository, the largest and most comprehensive tissue repository in the world, which includes cases dating back to 1917 and more than 3 million medical cases, in the hope that the knowledge gained could help prevent or defend against another deadly pandemic.

COLLECTIONS

The collections areas of the NMHM preserve materials representing key subject areas in the history and practice of American medicine, military medicine, and modern medical and health issues and research. Each collecting division specializes in different media and subject areas. Overall the responsibilities of the divisions are to (1) provide the highest level of professional care to the NMHM collections and their associated documentation; (2) collect objects, specimens, and related archival materials deemed significant and relevant to the mission of the NMHM; and (3) support research, exhibits and public programs through access to collections.

Collections accessioned dozens of historical and contemporary items relating to the key subject areas mentioned above. Moreover, the department facilitated loans of nearly three dozen objects to institutions including the Ben Franklin Tercentenary Exhibition in Philadelphia, National Library of Medicine, Charles Sumner School Museum and Archives, and National Museum of Civil War Medicine. Much of the work of these areas is reflected in Public Programs and Exhibitions as well as Museum outreach activities.

STAFF

- (A) Jeffrey S. Reznick, PhD, Senior Curator
- Lenore Barbian, PhD, Assistant Curator, Anatomical, and Acting Curator
- (A/D) Darryl Byrd, IMC Contract Archivist
- Gloria Feeney, Volunteer
- (A) Michelle Fontenot, Registrar
- Thomas Gaskins, Archives Technician (Detailed)
- Alan Hawk, BA, Collections Manager
- Donna Quist, BA, Assistant Collection Manager
- Michael Rhode, MA, Chief Archivist
- (A) Vincent Neaz, Photographer (Detailed)
- (D) Tabitha Oglesby, Assistant Archivist

- (A) Sarah Rice, IMC Contract Archivist
- (D) Michael Simons, Registrar
- (A) Catherine Sorge, Assistant Archivist
- (A) Kathleen Stocker, IMC Contract Archivist

ANATOMICAL COLLECTIONS

Anatomical Collections collects and preserves human and non-human medical, pathological, and anatomical specimens and associated materials documenting normal anatomy and the response to disease and injury.

Activities

L Barbian:

- Co-curated the exhibition “Walt Whitman’s Soldiers.”
- Provided 16 lectures/presentations to school groups at the NMHM/AFIP and in the DC metropolitan area.
- Provided expert assistance to the National Library of Medicine in support of their exhibition “Visible proofs: Forensic Views of the Body.”

Selected Media Interactions

L Barbian:

- February 2005: WTTG Fox 5 TV, “Medical Mysteries.”
- March 2005: Granada Media, “Battlefield Detectives” segment on the battle of Oriskany.
- March 2005: *Stripe*, “Believe it or not”
- May 2005: National Public Radio, “All Things Considered” segment on “Hidden Treasures: A Gruesome Stroll Through Medical History.”
- July 2005: Discovery Channel, “Dr. Know” segment featuring specimens from the anatomical collections.

HISTORICAL COLLECTIONS

The Historical Collection acquires and preserves both artifacts of record and of note documenting the history of the practice of medicine, innovations in biomedical research and the evolution of medical technology. The collection emphasizes the role of the Armed Services of the United States, United States Public Health Service and the United States federal government as it relates to the above themes. The collection is made available for the education of medical professionals, Department of Defense personnel, historians and the public through exhibits in the Museum, loans to other institutions and individualized study.

Historical Collections responds to queries about the history of military medicine as well as general history of medicine from civilian as well as military researchers. Staff responded to a total of 94 significantly complex research requests.

Activities

Historical Collections staff (DS Quist) co-curated an exhibit describing the work of Vince Przybyla, an ophthalmologist who worked at Walter Reed for 38 years. The exhibit opened in December 2005.

The Historical Collections databases currently include 38,880 records. The increase in the total number of records is a result of a transition to the Museum-wide (vice the current departmental datasets now in place) database based on KE-software’s KE EMu museum database. Historical Collections is the first dataset to go ‘live’ on KE EMu. Historical Collection’s staff (AJ Hawk) has been involved in editing and standardizing data in the new database. Museum staff (G Feeney) has been active in cataloging the Museum’s civil war bullet collection using the new software. The goal of the database is to make the holdings of Historical Collections more widely available to the research community.

Historical Collections has been actively collecting to document the history of military medicine. The collection related to the medical accomplishments of the Global War on Terrorism include medical instrument that had been proven particularly useful during Operation Iraqi Freedom from the 31st Combat Support Hospital located in Balad, Iraq, artifacts from Task Force Med 115 documenting the challenges in providing medical treatment to detainees and example of tourniquets adopted by the US Army based on experience in Afghanistan and Iraq. Advances in telemedicine have been preserved by the acquisition of

BMIS-T, a Personal Digital Assistant handheld computer modified by Telemedicine and Advance Technology Research Center (TATRC) to read and update medical records stored on a digital dog tag, and the Remote Clinical Consultation System (RCCS) used at Walter Reed Army Medical Center to provide medical consults to military doctors serving in Somalia, Haiti and Kosovo. Other acquisitions included a brick, inscribed “Don’t Spit on the Sidewalk,” donated by one of the presenters the National History Day event held at the Museum, the Charles Poser Collection, which includes military medical insignia from around the world, instruments and microscopes from the office of Frank Johnson, long time chemist who worked at the Armed Forces Institute of Pathology and artifacts from the office of Vince Przybyla, ophthalmologist at Walter Reed Army Medical Center.

OTIS HISTORICAL ARCHIVES

The Otis Historical Archives (OHA) was created in 1971 to house the rare and historic books the Museum had created or collected. Today, its holdings, which date back to the establishment of the Museum in 1862, consist of more than 350 collections that, if laid end to end, would stretch for over a mile. The Archives has several strengths. The Museum’s unique heritage makes it a rich repository for information on American military medicine, particularly the Civil War period. The archives is also home to an extensive photographic collection, including many early photomicrographs, abundant examples of medical illustration from the Civil War and World War I, films and videos, and trade literature and advertisements from the late 19th century.

Substantial requests for information were handled, frequently regarding sensitive topics. The Vorwald Collection continues to be used for research for asbestosis lawsuits in spite of being open to the public for nearly two decades. Interest in the 1918 influenza epidemic has not yet peaked, and many requests were received to use images from the Archives, all of which are viewable on the website to facilitate research. Gaskins found photographs of the 1957 Asian flu epidemic in the MIS library, scanned them and put them on the website where they were almost immediately used by the Science Museum of London. The Archives has continued sending Russia’s Military Medical Museum in St. Petersburg surplus or duplicate books through the DoD’s US-Russia Joint Committee on POW/MIAs. A book chapter “A Repository for Bottled Monsters and Medical Curiosities: The Evolution of the Army Medical Museum” on the Medical Museum in the nineteenth century was provided for *Small Shrines and Halls of Fame: Local Museums and Local Histories*, an edited volume by Amy Levin. Rhode was requested to submit his presentation “The Rise and Fall of the Army Medical Museum” for publication. A paper by Rhode on the Museum’s changes in WWI was accepted for the University of Newcastle’s WWI conference in the spring. He continued to work on preparing his lecture on the Medical and Surgical History of the War of the Rebellion for publication in the *Journal of the History of Medicine and Allied Sciences*. Technical information on nineteenth-century photomicroscopy, as well as a loan of photomicrographs by William Thompson, was provided to the National Gallery of Art for their symposium on Thomas Eakin’s portrait of Thompson. Records and photographs on St. Elizabeth’s hospital were provided to the GSA which has resumed control of the property. Images of the old Army Medical Museum were provided for the Adolph Cluss Exhibit Project. Stryker Trauma scanned portions of Gerhard Kuntscher’s World War II orthopedic publications from captured German records and plans to republish them.

Additionally, research and historical material, mostly on military medicine, was provided to AFIP’s Public Affairs Office, WRAIR, WRAMC, USUHS Department of Medical History, the OTSG’s Borden Institute as well as National Library of Medicine (including material for their forensic medicine exhibition), *Adbusters Magazine*, Arc Welder Films, Arizona State University, Arcwelder Films, *Atlanta Journal-Constitution*, Catholic University, Coran Healthcare, Engel Entertainment, Enslow Publishers, Inc., Farcountry Press, Federation of American Societies for Experimental Biology, Final Cut Productions, Fingerhut Powers and Associates, George Washington University, Gibbs Smith, Government Executive Magazine, GSA, Harvard School of Public Health, Jim Lehrer News Hour, Learning Media Ltd./State Services, Library Company of Philadelphia, McGill University, Miami University, Montreal General Hospital, Mountain Press Publishing, National Geographic Society, National Museum of Natural History, NOVA/WGBH Educational Foundation, *NurseWeek*, Ontario Science Centre, Oregon Public Broadcasting, Picture Research Consultants, Inc., RCSR Productions, RCW Communications Design, Science Museum of London, Science Web, Inc., Setting Pace, Simpson-Thatcher, Stryker, TSN-The Student Network, Teaching Company, Tuttle-Mori Agency, Inc., University of

California - San Diego, University of Cambridge, University of Wisconsin - Oshkosh, University of Oklahoma, University of Texas, *Vanity Fair*, WETA, WNET/13 Wide Angle, and the *Watchtower*.

The significant Archives presence including the Guide to the Collections of the Museum on the website remains the main way researchers begin to use the archives, and several finding aids were added to the website. More archival collections were listed in the Library of Congress' National Union Catalogue of Manuscript Collections (NUCMC), ensuring wider researcher use of the collections. The collaborative exhibit and publication with the Borden Center on the history of surgery, *Battlefield Medicine 101*, was revised with support from the Archives. Photographic and historical support was also provided for the Museum's Walt Whitman Civil War exhibit. The electronic AFIP Calendar mentioned in last year's report did not come to fruition.

The Medical Illustration Service Library, through the IMC scanning project, is being scanned. Rhode is the Task Order Manager for the MIS part of the project and hired assistant archivists, travelled to West Virginia to oversee the process, selected material for scanning, reviewed the material and recommends accepting the work on behalf of the government. Rice and Stocker are processing the images for scanning and then cataloguing them when they return. Gaskins and Sorge are providing the quality control. 71,000 images were scanned this year, and are currently being catalogued and indexed. Three major groups of photographs: the Museum and Medical Arts Service (MAMAS) photographs taken during WWII in Europe and Asia, the images from the publication *Atlas of Tropical and Extraordinary Diseases*, and AFIP staff portraits were scanned as well as general photographs from 1985-1986.

Computerized cataloguing on the collection level has continued in the shelf inventory. Cataloguing for the General Medical Products Information Collection, Medical Ephemera, New Contributed photographs, Audiovisual collection, AFIP Historical Files and others was done. Implementation of a comprehensive computer catalogue for the entire Museum continued with data from the archives being turned over to KE Software for conversion to their EMU database. New material acquired included Frank Johnson's office files and books, Howard Hartman's educational dentistry slides and Sherman Menton's World War II navy records. Museum records from staff members were added to the archives. The AFIP photography department gave the archives their old photo files, which included many portraits of AFIP staff.

Activities

Rhode served on the AFIP's Institutional Review Board and HIPPA committees as well as Museum committees including the Admin group, the collections committee and the database committee. Oglesby resigned to accompany her husband to Texas A&M where he entered graduate school. Sorge, formerly of USUHS's library, has been a valuable addition to the staff. Archives alumni Joan Redding joined the Borden Institute and is now the acting editor of the *Textbook of Military Medicine*.

Selected Media Interactions

- May 2005: Interview on *Battlefield Surgery 101* for Swedish Radio's *Vetenskapsradions veckomagasinet*, M Rhode. Interview aired June 3 online at <http://www.sr.se/cgi-bin/p1/program/artikel.asp?ProgramID=415&artikel=633290>
- July 2005: Interview for *The Press-Enterprise*, M Rhode.
- August 2006: Interview for "Morbid museum fleshes out history," *Dallas Morning News*, M Rhode.

RESEARCH COLLECTIONS

NMNH research collections consist of 2 divisions: the Human Developmental Anatomy Center and the Neuroanatomical Collections Division. Their joint mission is to acquire, preserve, and encourage the use of major research collections for all qualified members of the research community. Both collections are made available for research and for education by appointment and via website. Continued stimulation of new hypothesis-driven research is a top priority as the resources of both collections are used by AFIP staff.

STAFF

Adrianne Noe, PhD, Project Director, HDAC
Elizabeth C. Lockett, Collections Manager, HDAC

- (D) William F. Discher, Imaging Specialist
 - Austin Chang, Imaging Technician Virtual Embryo Project, HDAC
 - Jack Rutledge, Program Evaluation, Virtual Embryo Project, HDAC
 - Marjorie Shaw, PhD, Imaging Technician Virtual Embryo Project, HDAC
 - Archibald J. Fobbs, Collections Manager, Neuroanatomical Collections
- (D) Freddie Pruitt, National Science Foundation Assistant Technician
 - Shannon Fobbs, Volunteer, Neuroanatomical Collections
 - Tony Hammonds, Volunteer, Neuroanatomical Collections
 - Stephen Schiaffino, PhD, Volunteer, Neuroanatomical Collections

Human Developmental Anatomy Center

The Human Developmental Anatomy Center acquires and maintains collections pertaining to general developmental anatomy and neuroanatomy. Collections such as the ones housed at the Human Developmental Anatomy Center provide researchers a central location from which to obtain data about normal development for both human and common research species. HDAC maintains and archives the largest collection of human and comparative developmental material in the United States, in such a way as to make them most useful for research activities, yet preserve them for future generations of researchers.

Staff supported over 2 dozen VIP and scholarly tours and provided access for over 150 days of supported research and responded to 23 significant data requests. Institutions whose staff member used the Center include: National Institutes of Health, Nuclear Magnetic Research Center, Bethesda, Md; National Institutes of Health, National Library of Medicine, Bethesda, Md; Louisiana State University, Health Sciences Center, New Orleans, La; the Society for Developmental Biology, Bethesda, Md, Anatomical Travelogue, Inc., NYC, and the Johns Hopkins University School of Medicine, Center of Magnetic Resonance Microimaging, Baltimore, Md.

Activities

Development of “A Healthy Heart” temporary exhibit of visualizations of human anatomy from photos, MR and CT data. NMHM, Washington, DC.

Neuroanatomical Collections

The Neuroanatomical Collections encourages use of its assets by all qualified members of the research community. This division collects and preserves valuable collections and objects relating to neuroanatomy and is a premier repository in the United States for collections focusing on neuroanatomy in the embryo, the adult human, as well as other selected species.

The division includes the following collections:

- Yakovlev-Haleem Neuropathology and Development Collection
- Blackburn-Newmann Collection
- Lindenburg Forensic Pathology Collection
- Welker Comparative Neuroanatomy Collection
- Rubenstein Collection
- Adolph Meyer Neuropathology and Development Collection
- Isabel Lockhard Comparative Neuroanatomy Collection
- Publos Anatomical Collection
- Denny Brown Neuromuscular Collection
- Starr Collection
- William Cruce Collection
- Harrison Collection
- John I. Johnson Comparative Collection
- C. Miller Fisher Neuroanatomical Collection
- Diane Smith Comparative Neuroanatomy Collection

Activities

Researchers visiting the Neuroanatomical Collections increased by 60 percent. The National Science Foundation continues to recognize the collaboration among the National Museum of Health and Medicine/AFIP, the University of Wisconsin-Madison, and Michigan State University as one of its model projects it has funded, and has continued and increased the funding for NMHM and these collaborators. This grant provides collections management and acquisitions and databasing support.

Manuel Casanova, MD, Professor of Psychiatry and Neurology, Veterans Administration Medical Center, Augusta, Georgia and Daniel Buxhoeveden, MD, Assistant Professor, Medical

College of Georgia are using the collection in their Quantitative comparative morphology of cell columns in humans and nonhuman primate brains. The goal of this project is to compare organization of cell columns in the temporal region of humans to that of primates.

John Allman, PhD, Division of Biology, Caltech University, Pasadena, California, and his staff in collaboration with Neuroanatomical collections staff, have conducted research on the developing spindle cells and their correspondence to fetal development and adult mental illness. Also in the beginning stages is a stereology (algorithmic mapping) of the human and other mammalian brains project.

Website

The University of Wisconsin-Madison and Michigan State University implemented and supervise the brain collection website in a project operated and directed on-site by Archie Fobbs. Financial support for this website is provided by a grant from the National Science Foundation. Collection inquiries via the website increased 50 percent over those of 2005. Requests for collection images and scheduled visits to the collections division and to the Museum have all increased as a result of the website. The website averages 110 hits per day from all over the world. Educators continue to report that the website is a useful curriculum development resource for science projects and for answering structural and functional questions about the brain and is available to the general public. The website widely publicizes images and information about the existence, contents, and value of the brain collections. Via the Internet, information about sectioned brain specimens at the three institutions is presented and promoted electronically on our Brain Collection home page <http://www.brainmuseum.org>, with additional information on ancillary sites:

<http://www.manateebrain.org>; <http://www.brains.rad.msu.edu> (the Michigan State portal); and <http://turing.commtechlab.msu.edu/default.htm> (the database site). The 4 sites are interlinked; all can be reached from one another. The visual presentations that we have already made on the Internet, and that we are about to expand, have aroused interest in comparative neuroanatomy and enhanced understanding about the nervous system to a wide audience. In addition, people with little understanding of the brain can gain a detailed understanding of mammalian brain structure.

Conservation

The fluid-preserved tissue conservation for the Yakovlev-Haleem Collection and the Welker Comparative Neuroanatomy Collection continues. Conservation procedures are performed on a regular basis and fluids are changed as needed. In an effort to improve the conservation efforts the fluid preserved tissue of the Yakovlev-Haleem Collection have been transferred to the Museum's offsite storage facility in Gaithersburg, Md.

Collection staff are currently identifying conservation needs and examining Welker Comparative Neuroanatomy Collection slides along with all other collection slides. This information is used to continue to develop and implement a formal conservation plan. The Yakovlev-Haleem library reorganization continues. As the reorganization takes place, evaluation of the condition of the contents will take place. Due to a breach in the outer wall, portions of the Yakovlev-Haleem library will be relocated to the Museum's offsite storage facility in Gaithersburg, Md. Slides from the C. Miller Fisher Collection are in the process of being stored in slide cabinets at the Gaithersburg, Md facility.

Tours/Use

Neuroanatomical Collections Division hosted approximately 100 tours during 2005 and user hours have increased significantly (40%) over those of 2005.

EDUCATION

Courses

L Barbian:

1. 18th Annual Forensic Anthropology course at the National Transportation Safety Board Academy in Ashburn, Va from June 6 through 10, 2005. Participants numbered 66. Planning for the 2006 course was undertaken.
2. Laboratory instructor for the forensic anthropology component of the Forensic Identification and Emerging Technologies course sponsored by the Department of Oral and Maxillofacial Pathology.

Trainees

1. The Human Developmental Anatomy Center hosted 5 interns from local high schools.

2. The Neuroanatomical Collections hosted 3 interns from local universities and the Collections were instrumental in providing valuable educational experiences for students from the Presidential Classroom, National Youth Leadership Forum on Medicine, Rappahannock High School, Swanson Middle School, George Washington University, and Howard University. The Howard County Technology Magnet Applications and Research Laboratory Program has partnered with Neuroanatomical Collections and the Human Developmental Anatomy Center to promote internships for high school students of Howard County. This relationship provides research opportunities for students attending the county's technical magnet programs at Long Reach in Columbia, Md and River Hill High School in Clarksville, Md.
3. Elementary and secondary educators continue to increasingly use the collection for classroom instruction. One such institution is Bonnie Branch Middle School where Carine Fobbs provided students with a presentation on Functional Magnetic Resonance Imaging on the brain.
4. Data and images from Museum collection specimens are made available for use in education at all levels. This is done via the Internet or via physical diskettes. This resource is used by students nationwide to access information about mammalian brain structure.
5. Magnetic Resonance Imaging (MRI) scans provide volumetrically and spatially accurate data about the internal architecture of brains of rare or difficult-to-process species of animals. The spatial data can be analyzed in 3-dimensional models. In the neuroanatomical collections area, student interns obtained scans using software such as Adobe Photoshop and Surf Driver for 3D modeling. The project has provided opportunities for training interns in the use of data storage, electronic imaging, and the acquisition of neuroanatomical data, including 3-dimensional surface render modeling.
6. The Museum hosted dozens of special behind-the-scenes tours for local and distant schools at all educational levels and for many professional specialties.

Faculty Appointments

1. Adjunct Faculty, School of Computational Sciences, George Mason University, Fairfax, Va, A Noe.
2. Adjunct Faculty, Department of Community Health and Family Practice Howard University College of Medicine, Howard University, Washington, DC, JS Reznick.

Presentations

1. January 2005: Washington, DC, AFIP, "The great disease enemy, KAK'KE (beriberi) and the Imperial Japanese Army," AJ Hawk.
2. February 2005: Washington, DC, NMHM-AFIP, "Introduction to brain function and neuropathology," AJ Fobbs.
3. March 2005: Washington, DC, NMHM-AFIP, Brain Awareness Week, "Introduction to brain function and neuropathology," AJ Fobbs.
4. April 2005: Washington, DC, NMHM-AFIP, Brain Rules, "Introduction to brain function and neuropathology," AJ Fobbs.
5. April 2005: Bethesda, Md, National Library of Medicine, "Healing the nation: soldiers and the culture of caregiving in Britain during the Great War," JS Reznick.
6. May 2005: Washington, DC, NMHM-AFIP, Brain Awareness, "Introduction to brain function and neuropathology," AJ Fobbs.
7. May 2005: Coolfont, WV, Federal Emergency Management Attorneys Conference, "Forensic anthropology," L Barbian.
8. June 2005: Washington, DC, NMHM/AFIP, National Youth Leadership Forum on Medicine, "Introduction to Brain Function and Neuropathology," AJ Fobbs.
9. June 2005: Washington, DC, NMHM-AFIP, Introduction to the film "Battle Circus," AJ Hawk.
10. June 2005: Manchester, UK, University of Manchester Center for the Culture History of War and Center for the History of Science, Technology and Medicine, "Disability, memory, and material culture," JS Reznick.
11. July 2005: Washington, DC, AFIP, AFIP Summer Intern Program, "Introduction to brain function and neuropathology," AJ Fobbs.
12. July 2005: Washington, DC, NMHM-AFIP, National Youth Leadership Forum on Medicine, "Introduction to brain function and neuropathology," AJ Fobbs.

13. July 2005: Urbana, Ill, American History Teachers' Collaborative Summer Institute of the Urbana School District, "War, society, and the history of medicine in the United States," JS Reznick.
14. August 2005: Germantown, Md, International Monetary Fund Summer Camp, Bretton Woods Recreation Center, "Introduction to brain function and neuropathology," AJ Fobbs.
15. October 2005: Washington, DC, American University, Public Archaeology Workshop, "Living with the dead," L Barbian.
16. October 2005: Washington, DC, NMHM-AFIP, "Learning about forensics III: a museum murder mystery," L Barbian.
17. November 2005: Baltimore, Md, American Radiological Services, "Human skeletal identification: forensic anthropology," L Barbian.
18. November 2005: Washington, DC, NMHM-AFIP, "Society for Neuroscience Brain Museum," AJ Fobbs.
19. November 2005: Washington, DC Convention Center, Society for Neuroscience Meetings, "Similar distinctive arrangements of sensory regions in cerebral cortex of artiodactyl sheep and cetacean dolphins," AJ Fobbs.
20. November 2005: Arlington, Va, Culpepper Garden Senior Center, "Civil War hospital trains," AJ Hawk.
21. November 2005: Washington, DC, NMHM-AFIP, "Clue: solve the mystery with DNA and forensic evidence," L Barbian.
22. November 2005: Washington, DC, Sumner School, Adolph Cluss Exhibition Project, "The rise and fall of the Army Medical Museum and Library," M Rhode.
23. November 2005: Washington, DC, Smithsonian Institution's National Museum of American History, "Tuesday Colloquium," M Rhode.
24. November 2005: Washington, DC, District of Columbia Historical Studies Conference, "Walt Whitman's soldiers," JS Reznick.
25. November 2005: Washington, DC, NMHM-AFIP, Introduction to the film "Behind the Lines," JS Reznick.

RESEARCH

Journal Article

Demetrikopoulos MK, Morris LG, Fobbs AJ. The marine mammal brain game. *The Science Teacher*. 2005;72:24-9.

Abstract

Johnson JI, Morris JA, Fobbs AJ. Similar distinctive arrangements of sensory regions in cerebral cortex of artiodactyl sheep and cetacean dolphins. Society for Neuroscience Meetings, Washington, DC, November 2005.

Book Chapter

Noe A. The Human Embryo Collection. In: Maienschein J, Glitz M, Allen GE, eds. *Centennial History of the Carnegie Institution of Washington. Volume V. The Department of Embryology*. Cambridge, UK: Cambridge University Press; 2005:21-61.

Book

Reznick JS. *Healing the Nation: Soldiers and the Culture of Caregiving in Britain During the Great War*. Manchester, UK: Manchester University Press; 2005.

Other Publications

1. Hawk AJ. "Hospital ships." United States at War. ABC-CLIO. <http://www.usatwar.abc-clio.com>
2. Hawk AJ. "Military hospitals in the American Civil War." United States at War. ABC-CLIO. <http://www.usatwar.abc-clio.com>
3. Hawk AJ. "Minie ball." United States at War. ABC-CLIO. <http://www.usatwar.abc-clio.com>
4. Hawk AJ. "Percussion cap." United States at War. ABC-CLIO. <http://www.usatwar.abc-clio.com>
5. Hawk AJ. "Review of John H. Brinton. *Memoirs of John H. Brinton: Civil War Surgeon, 1861-1865*." *H-CivWar, H-Net Reviews*, April 2005. <http://www.h-net.org/reviews/showrev.cgi?path=228311119638375>

6. Reznick JS. "Honor WWI vets before they're all gone." *The Baltimore Sun* (November 11, 2005) Commentary, 15A.
7. Reznick JS. "John Galsworthy." In: Albrecht GL, ed. *Encyclopedia of Disability*. New York: Sage Publications; 2005.

Projects

1. History of the Imperial Japanese Army Medical Department, 1870-1945: AJ Hawk.
2. Military medicine and high performance computing: A Noe.
3. History of information presentation for military battlefield environments: A Noe.
4. History of prosthetics and orthotics, ca. 1860-present: JS Reznick.
5. Military medicine in World War I America: JS Reznick.

Collaborators

1. John Allman, PhD, Division of Biology, California Institute of Technology
2. Manuel F. Casanova, MD, Gottfried and Gisela Kolb Endowed Chair in Psychiatry, University of Louisville Department of Psychiatry
3. Karen Graham, Dana Alliance for Brain Initiatives
4. John I. Johnson, PhD, Department of Anatomy, Michigan State University
5. Jason Kaufman, PhD, Division of Biology, California Institute of Technology
6. Kebreten Manaye, MD, Department of Physiology and Physics, Howard University College of Medicine
7. Lori Marino, PhD, Neuroscience and Behavioral Biology Program, Emory University
8. John Morris, Neuroscience Program, Michigan State University
9. Nancy Peckerar, Downcounty Partnership Coordinator, Spring Mill Field Office, Montgomery County Public Schools
10. William W. Seeley, MD, Clinical Fellow in Behavioral Neurology, University of California San Francisco, Memory and Aging Center
11. Robert Switzer III, PhD, Neuroscience Associates, Inc.
12. Michael Szesze, Montgomery County Public Schools, Program Supervisor for Science, K-12
13. Wally I. Welker, PhD, Department of Physiology, University of Wisconsin-Madison
14. Kondi Wong, MD, Department of Neuropathology, AFIP

PROFESSIONAL ACTIVITIES

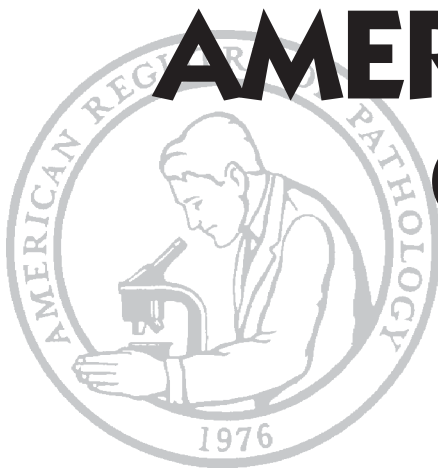
Official Trips

1. February 2005, American Academy of Forensic Sciences Annual Meeting, New Orleans, La, L Barbian (AFIP).
2. April 2005, Medical Museums Association Annual Meeting, Birmingham, Ala, AJ Hawk (AFIP).
3. April 2005, American Association for the History of Medicine Annual Conference, Birmingham, Ala, AJ Hawk (AFIP).

Manuscripts Reviewed

JS Reznick:

1. Manchester University Press (reviewer of manuscripts)
2. *Studies in Social Science* (special issue editor and reviewer)



AMERICAN REGISTRY OF PATHOLOGY



William A. Gardner Jr, MD
Executive Director
Date of Appointment — 1 August 2002

AMERICAN REGISTRY OF PATHOLOGY

2005 was a year of major transition for AFIP, with corresponding readjustment for ARP. The AFIP's new Business Plan, which provides for billing and collection functions for consultations, was implemented. The new plan substantially limits the availability of funds for educational and research programs, including Callender-Binford subspecialty fellowships, and Donald West King one-month fellowships.

The most significant development in 2005 was the recommendation of the Base Realignment and Closure Commission (BRACC) to close the Walter Reed facility and close or relocate AFIP functions. This recommendation became a matter of law in November. One retained function was the AFIP's Tissue Specimen Repository. In anticipation of this, ARP convened a Nation Consensus Conference on the Repository. Recommendations from that conference were received positively by DoD Health Affairs and interested legislators. Proposed legislation (S. 1873) incorporates the conclusions of the conference and would create a National Pathology Center within the NIH.

ARP publications, now under the banner of ARP Press, released the first 2 volumes of Series 4 of the Atlas of Tumor Pathology, and volumes 3 and 4 of the Atlas of Nontumor Pathology. Each has received excellent review. All Atlases are available at no charge to military pathologists through the AFIP website. In addition, approximately 1,600 hard-copy volumes were distributed gratis to military pathologists in 2005. We have made contractual arrangements to place newsworthy Atlas content on WebMD's Medscape website.

A major component of ARP activity is providing staff under contract to several DoD functions, including the Armed Forces DNA Identification Laboratory (AFDIL), which is scheduled to relocate from Rockville, Md to Dover, Del in 2011 to 2012.

ARP supports subspecialty Callender-Binford fellowships in gastrointestinal, genitourinary, gyn/breast, pulmonary, soft tissue, hepatic, and oral pathology, and neuropathology and dermatopathology. The Donald West King Fellowship program this past year provided one-month subspecialty training to 29 pathology residents from 26 programs around the country. Although the number of AFIP CME courses has decreased, many remain popular. The 6-week Radiologic Pathology review course continues to be a requirement in virtually every radiology residency program in the country.

ARP supported a number of AFIP projects, including 5 individual research programs. Currently, ARP supports the maintenance of a BSL-3 animal facility at AFIP and the development of a Quality Assurance Program for the National Military Cancer Institute Tissue Bank.

2005 CUMULATIVE PUBLICATIONS LIST

2005 CUMULATIVE PUBLICATIONS LIST

Discounting duplicate listings for multiple authors, in 2005 the medical and scientific staff of the AFIP published approximately 151 articles in professional journals and 121 abstracts. They contributed 13 chapters to published books, and were authors or editors of 7 published books. Miscellaneous publications included approximately 13 chapters in various course syllabuses and 6 whole syllabuses, 9 newsletter issues, 9 Web publications or epubs, and 16 books and fascicles digitized for online publication. Details of these publications appear below. Authors are listed alphabetically within departments, divisions, offices, etc, which are also listed alphabetically.

ARMED FORCES MEDICAL EXAMINER, OFFICE OF

Journal Article

Isenbarger D, et al. Venous thromboembolism among United States soldiers deployed to Southwest Asia. *Thromb Res.* 2005 May 10; [Epub ahead of print].

BIOPHYSICAL TOXICOLOGY, DIVISION OF

Journal Articles

1. Arun P, Moffett JR, Ives JA, Todorov TI, Centeno JA, Namboodiri MA, Jonas WB. Rapid sodium cyanide depletion in cell culture media: outgassing of hydrogen cyanide at physiological pH. *Anal Biochem* 2005;339:282-9.
2. Baydur A, Koss MN, Sharma OP, Dagleish GE, Nguyen DV, Mullick FG, Murakata LA, Centeno JA. Microscopic pulmonary embolization of an indwelling central venous catheter with granulomatous inflammatory response. *Eur Respir J.* 2005;26:351-6.
3. Centeno JA, Mullick FG, Finkelman RB, Selinus O. Medical geology: an emerging discipline in support of environmental and military medicine. *Mil Med Tech.* 2005;9:7-9.
4. Cook AG, Weinstein P, Centeno JA. Health effects of natural dust: role of trace elements and compounds. *Biol Trace Elem Res.* 2005;103:1-15.
5. Ejnik JW, Todorov TI, Mullick FG, Squibb K, McDiarmid MA, Centeno JA. Uranium analysis in urine by inductively coupled plasma dynamic reaction cell mass spectrometry. *Anal Bioanal Chem.* 2005;382:73-9.
6. Finkelman RB, Centeno JA, Selinus O. The emerging Medical and Geological Association. *Trans Am Clin Climatol Assoc.* 2005;116:155-65.
7. Gray MA. Clinical use of serum prostate-specific antigen: a review. *Clin Lab.* 2005;51:127-33.
8. Katzin WE, Centeno JA, Feng LJ, Kiley M, Mullick FG. Pathology of lymph nodes from patients with breast implants: a histologic and spectroscopic evaluation. *Am J Surg Pathol.* 2005;29:506-11.
9. Liu PC, Chen YW, Centeno JA, Quezado M, Lem K, Kaler SG. Downregulation of myelination, energy, and translational genes in Menkes disease brain. *Mol Genet Metab.* 2005;85:291-300.
10. Todorov TI, Ejnik JW, Mullick FG, Centeno JA. Arsenic speciation in urine and blood reference materials. *Microchim Acta* 2005;1:1-6.

Abstracts

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